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Geert Lovink, Nathaniel Tkacz u.a. (Hg.)

Critical Point of View. A Wikipedia Reader

2011

https://doi.org/10.25969/mediarep/19287

Veröffentlichungsversion / published version

Buch / book

Empfohlene Zitierung / Suggested Citation:
Lovink, Geert; Tkacz, Nathaniel (Hg.): *Critical Point of View. A Wikipedia Reader*. Amsterdam: Institute of Network Cultures 2011 (INC Readers 7). DOI: https://doi.org/10.25969/mediarep/19287.

Erstmalig hier erschienen / Initial publication here:
https://networkcultures.org/blog/publication/critical-point-of-view-a-wikipedia-reader/

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DFG Deutsche Forschungsgemeinschaft

Philipps Universität Marburg

CRITICAL POINT OF VIEW
A Wikipedia Reader

EDITED BY
GEERT LOVINK AND
NATHANIEL TKACZ

INC READER #7

CRITICAL POINT OF VIEW
A Wikipedia Reader

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Cover Image: Ayumi Higuchi
Printer: Ten Klei Groep, Amsterdam
Publisher: Institute of Network Cultures, Amsterdam 2011
ISBN: 978-90-78146-13-1

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Supported by: The School for Communication and Design at the Amsterdam University of Applied Sciences (Hogeschool van Amsterdam DMCI), the Centre for Internet and Society (CIS) in Bangalore and the Kusuma Trust.

Thanks to Johanna Niesyto (University of Siegen), Nishant Shah and Sunil Abraham (CIS Bangalore) Sabine Niederer and Margreet Riphagen (INC Amsterdam) for their valuable input and editorial support. Thanks to Foundation Democracy and Media, Mondriaan Foundation and the Public Library Amsterdam (Openbare Bibliotheek Amsterdam) for supporting the CPOV events in Bangalore, Amsterdam and Leipzig. (http://networkcultures.org/wpmu/cpov/)

Special thanks to all the authors for their contributions and to Cielo Lutino, Morgan Currie and Ivy Roberts for their careful copy-editing.

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CRITICAL POINT OF VIEW **A Wikipedia Reader**

EDITED BY
GEERT LOVINK AND
NATHANIEL TKACZ
INC READER #7

The INC Reader series is derived from conference contributions and produced by the Institute of Network Cultures. They are available in print and pdf form. *Critical Point of View* is the seventh publication in the series.

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ACKNOWLEDGEMENTS

There are always many threads that lead up to a collaborative project. We would like to mention a few meetings and conversations. Geert's interest in critical Wikipedia research started in late 2007 when he gave his first talk on the matter at the Dutch national meeting of public libraries. Almost a year later he discussed his interest in Paris with French philosopher Gérard Wormser, who said we should look into analogies between Wikipedia and efforts of the 18th century encyclopedians.

The two of us met at a workshop organized by Michael Dieter in Melbourne in 2008. From there we decided to work together and build a research network. Geert was already in touch with Johanna Niesyto (Siegen, Germany), and she came on board around the same time. Soon after, Geert met up with Sunil Abraham and Nishant Shah from the Centre for Internet and Society in Bangalore in Café De Balie in Amsterdam to talk about possible collaborations – the deal was made in no time. The roadmap for the following conferences in Bangalore (January 2010), Amsterdam (March 2010), and Leipzig (September 2010), and for this publication, was written up in June 2009 by Johanna, Nathaniel, Sunil, Nishant, and Geert and can be found in the Appendix.

Early work for this publication was done by Juliana Brunello, who came to the Institute of Network Cultures as an intern. In early to mid-2010 she approached authors and coordinated the first drafts before moving onto a research masters in Rotterdam. U.S. PhD student Ivy Roberts worked with Nathaniel on the revisions, editing the various drafts and advising our authors on how to improve their arguments. In the INC office, Sabine Niederer and Margreet Riphagen gave invaluable support to find funding for this publication, the website, and the Amsterdam conference. Nishant and Johanna also provided great support to make this publication happen. Thanks a lot also to Morgan Currie who came on board to coordinate and prepare the design and printing process for publishing. And to Cielo Lutino who copyedited the final versions. With this reader the CPOV initiative ends its first round of activities. A German publication, edited by Johanna Niesyto, based on the Leipzig conference that focused exclusively on the German-language Wikipedia (the second largest after English), is due to come out later this year. If you are interested in joining the CPOV initiative, it is probably best to subscribe to the (public) mailing list (http://listcultures.org/mailman/listinfo/cpov_listcultures.org). Plans are afoot for another round on Wikipedia and education. If you share the CPOV spirit of critical engagement with this unique global project of collaborative knowledge production, please contact us.

Amsterdam/Melbourne, February 2011

Geert Lovink and Nathaniel Tkacz

INTRODUCTION
THE 'C' IN CPOV

GEERT LOVINK AND **NATHANIEL TKACZ**

In January 2011, while wrapping up this publication, Wikipedia turned ten. It was a moment to pause and take stock of the project, to reflect on the past, and to speculate as to what the future holds. The event was standard press for major news outlets and technology reviews, and there were celebrations in several cities across the globe. Well-worn factoids and forgotten events were dusted off and organized into timelines and top-ten lists. [1] Experts and historical figures rehashed the same sound bites that made them experts and historical figures. Number crunching of all sorts was also in full flight – now up to 17 million articles, with 3.5 million in the English version and 400 million unique visitors per month. But the numbers were seldom delivered with the same gusto or marvelled at as when Wikipedia first became public fodder. Today, the miracle of Wikipedia is part and parcel of the ordinary routines of our networked life.

From the critics lounge, we heard all the usual suspects. Co-founder Larry Sanger once again complained about the lack of experts and accused Wikipedia of poor governance. Former editor-in-chief of *Britannica* Robert McHenry reminded us that there are no guarantees that articles are accurate and therefore Wikipedia can't be trusted. [2] And the ever-colourful Andrew Keen chimed in with remarks like, 'Who gives their labor away for free, anonymously? Only schmucks would do that. Or losers'. [3] On the many reasons people might want to operate outside the modalities of wage labor and recognition-based work, it would appear that Keen is still an amateur.

In the English-speaking world at least, it seems that commentary about Wikipedia is a fairly settled matter. It has its spokespeople, its facts and figures and its critics, along with its mythologized history and steadfast vision to provide the world's knowledge to everyone. Someone makes the obligatory comparison with *Encyclopaedia Britannica*; another remarks on the celebrity status of Jimmy Wales or fusses about anonymous edits versus expert knowledge. A handful might register global imbalances. Is there a really a secret 'cabal' that controls the editorial changes and resides over the hierarchy of decision makers? Whatever. There will always be grumpy critics – and trolls – to deal with. The caravan moves on, and Wikipedia is here stay.

1. Jolie O'Dell, '10 Years of Wikipedia [INFOGRAPHIC], 18 January 2011, Mashable, http://mashable.com/2011/01/18/10-years-of-wikipedia-infographic/
   'Top 10 Wikipedia Moments', time.com, http://www.time.com/time/specials/packages/completelist/0,29569,2042333,00.html.
2. Duncan Geere and Olivia Solon, 'Viewpoints: what the world thinks of Wikipedia', Wired.co.uk, 13 January 2011, http://www.wired.co.uk/news/archive/2011-01/13/wikipedia-viewpoints?page=all.
3. 'Look it up: Wikipedia turns 10', Al Jazeera, http://english.aljazeera.net/indepth/features/2011/01/201111571716655385.html.

What the media coverage revealed was not so much that the people who speak about Wikipedia is unchanging – there were new voices – but rather the narrowness of the terms of debate. It is the parameters of the debate itself that seem to have stabilized. What's missing is an informed, radical critique from the inside. To be sure, nobody expects the popular press to delve deep into Wikipedia's history, to write about the ins and outs of the Wikimedia Foundation, or to create new philosophical insights about the way Wikipedia organizes knowledge. Nonetheless, much of the discussion about Wikipedia, both in the news and in more scholarly circles, still largely reflects the concerns found in these populist perspectives.

The Critical Point of View (CPOV) research initiative, whose material is brought together in this reader, poses different questions than those we have thus far encountered. The aim of the project, as formulated mid-2009, was to critically engage with and reflect upon, rather than just extend, the kinds of positions found in the tenth anniversary coverage, for example. The CPOV initiative sees itself as a first attempt to create an independent global research network that operates outside of the realms of the Wikimedia Foundation's interests. It also positions itself as a coalition of humanities-based scholars, activists, and artists and in that sense goes beyond the statistical social science and IT approaches gathered at the (ACM) Wikisym conference series that remain close to the rhetoric and agenda of the Foundation. There is certainly a place for this work, but it should not mark the end point of engaged research about Wikipedia. It will also quickly become clear to readers that many of our own contributors have been deeply involved in either editing, participating in national chapters, or coordinating at the global level through Wikipedia's San Francisco headquarters.

What does Wikipedia research look like when the focus is no longer solely on the novelties of (open) collaboration or on whether Wikipedia is trustworthy and accurate? What does it mean to properly consider Wikipedia as mainstream, as embedded in the many rituals of everyday life, and no longer regarded as a quirky outsider? What perspectives become available once we tone down the moralizing and ready-made narratives and instead fully embrace the reality of Wikipedia's massive use, especially among students and scholars? What values are embedded in Western male geeks' software and interface designs? What new areas of enquiry are important and, indeed, possible once we change focus? And most importantly, what is the role and substance of critique when directed towards a project that claims to be accessible to (almost) anyone and free to use, copy, and contribute to – when it is overseen by a non-profit and driven by an overarching vision seemingly in perfect harmony with Western Enlightenment? Indeed, how to say anything critical at all in light of the anticipated response: 'If you don't like it, please come and change it – we're open'?

CPOV is a playful pun on Wikipedia's core policy, the Neutral Point of View. The NPOV policy is designed to ensure Wikipedia's content is 'as far as possible without bias' and that the different positions on any topic are represented 'fairly' and 'proportionately'.[4] Together with the No Original Research (NOR) and Verifiability (V) policies, NPOV circumscribes the boundaries of what counts as knowledge on Wikipedia. The policy is also designed to mediate between the many different perspectives on a given topic and enable consensus to emerge. NPOV both guides the knowledge-making process and is its method of evaluation.

4. Wikipedia contributors, 'Neutral Point of View', http://en.wikipedia.org/wiki/Wikipedia:Neutral_point_of_view.

If this reader wants to prove something, it is not just that it is still in the early days for critical internet studies. Wikipedia provokes us all. None of the contributors are neutral about the encyclopedia that 'anyone can edit'. It turns out that the question of what to make of Wikipedia is setting off a broad range of emotions and responses from people with different geocultural backgrounds, writing styles, and political opinions. Living in the shadow of decades of postmodern, 'deconstructive' thought, claims to neutrality, however qualified and reconfigured, still make us shudder. Humanities and social science scholars and generations of artists and activists have been trained to be deeply suspicious of such claims. We look to truth's power, not its enlightenment. And thus, we might ask: What are the conditions from which claims to neutrality can be made? What truths need to be established for neutrality to gain force? As we know, NPOV explicitly makes no claims to provide the truth, but it must nonetheless be based on a truth of what is neutral. Against the neutral voice of a homogeneous authority, the CPOV project argues for lively debates (not hidden on discussion pages) and an editorial culture that emphasizes theoretical reflection, cultural difference, and indeed critique – in particular of the foundations of one's own ideas, facts, and statements.

Of late, the tradition of critique has lost its appeal. Criticism is often identified with European pessimism, destructive character traits, and apathetic or nihilistic tendencies, perhaps even clinical depression. Others link the genre to a necessary membership with the Frankfurt School (but where to apply?). For some academics the term cannot be used unless we first work through the oeuvres of Adorno, Horkheimer, and Marcuse and position ourselves in relation to the few remaining critical theorists from Habermas to Honneth.

French theorist of science and technology Bruno Latour worries that a kind of uninformed scepticism has become the rule, and critique – in particular of scientific knowledge – has not only lost its power, but is now deployed by the very forces it was historically used against. He notes how it was wielded against the general scientific agreement on global warming by those who benefit from its denial. On a more theoretical level, Latour points to critique's unsatisfactory logic, where different forms of knowledge are dismissed as fetishes in order to make room for the real thing: 'after disbelief has struck and an explanation is requested for what is really going on [...] it is the same appeal to powerful agents hidden in the dark acting always consistently, continuously, relentlessly'.[5]

In its worst manifestation, equipped with their own set of unchallengeable truths, critics can explain the whole world away without ever leaving their armchairs. Even Latour, however, does not want to leave the idea of critique behind. Rather, he urges us to 'associate the word *criticism* with a whole set of new positive metaphors, gestures, attitudes, knee-jerk reactions,

5. Bruno Latour, 'Why Has Critique Run out of Steam? From Matters of Fact to Matters of Concern', *Critical Inquiry*, Vol 30, n 2 (Winter 2004): 25-248, http://www.bruno-latour.fr/articles/article/089.html.

habits of thoughts', and he reimagines the critic not as 'the one who debunks, but the one who assembles [...] not the one who lifts the rugs from under the feet of the naïve believers, but the one who offers the participants arenas in which to gather'. [6]

But there is also no reason to think that critique should be underpinned by some profound truth or universal imperative, as in Latour's caricature. The question of critique and the role of the critic should not be posed abstractly and should always remain relevant. Indeed, in *What is Critique*, Foucault stresses from the very beginning that critique was more of an attitude, a disposition toward knowledge that takes on different forms depending on the situation. He describes the critical attitude as 'at once partner and adversary of the arts of governing, as a way of suspecting them, of challenging them, of finding their right measure, of transforming them [...] as an essential reluctance, but also and in that way as a line of development'. [7] It is not about debunking fetishes so the critic can feel good about himself or herself.

CPOV is not mapping ready-made theories onto unwitting and unwilling entities. Critique is intimately bound up with that which it challenges, 'at once partner and adversary'. For the CPOV project, critique is the expression of a lively culture of (collaborative) reflection that will ultimately be embedded into the next generation of wiki-related practices, software, and interfaces. Despite its success, much needs to be improved – and not just the tragic gender imbalance ('Dickipedia'). [8] The role of criticism thus should be to generate radical and visionary proposals for a future Wikipedia that will clearly make a break with the male geek engineer culture, its limited 'science' focus, and decision-making rituals. A second office of the Wikimedia Foundation in India is a good first step.

The CPOV reader aims to establish a whole spectrum of critique, a plurality of CPOVs with different aims and methods. Derrida-style deconstruction isn't enough. The task is to create new encounters and point to new modes of inquiry, to connect the new with the old, and to give voice to different, 'subjugated' histories. We must contest unchallenged assumptions, identify limitations and oversights, and explore everyday workings, policies, and significant events. In short, we must greatly expand the terms and objects of debate, making possible 'new lines of development'.

The Wikipedia project also challenges us to rethink the very terms under which the global politics of knowledge production is debated. So far, critique has mostly been aimed at institutional politics inside universities and the publishing industries. It is now time to update the Italian style 'uni-riot' activist approaches of the 'precarious' student movement and fine-tune it to the contours of net struggles. The internet is not simply a *vehicle* for global struggles. In this sense, CPOV's purview extends beyond a critique of Wikipedia per se. Wikipedia's very success connects it to a wider set of concerns: What is the relationship between Wikipedia

6. Ibid.
7. Michel Foucault, 'What is Critique?' James Schmidt (ed.), *What is Enlightenment?*, London: University of California Press, 1996, p. 384.
8. Noam Coen, "Define Gender Gap? Look Up Wikipedia's Contributor List", *New York Times*, 30 January 2011, http://www.nytimes.com/2011/01/31/business/media/31link.html?_r=2.

and other, especially non-western, knowledge practices? What is the relationship between Wikipedia and (higher) education or Wikipedia and database design? Wikipedia can also be seen as a kind of microcosm for the web. How are ideas from Free and Open Source Software mirrored and mutated into this context of collaborative knowledge production? What happens to knowledge and culture in the land of the algorithm? What is the role of automated actors such as bots in the maintenance of online platforms? How do different language communities relate to and differ from one another in multilingual projects? It is in this sense that CPOV 'is about Wikipedia and not about Wikipedia', as Nishant Shah remarked at the first CPOV conference in Bangalore, January 2010. CPOV is about more than Wikipedia: it approaches Wikipedia as an access point, symptom, vector, sign, or prototype.

The contributions we bring together do not form an overarching harmony. Indeed, some are in more or less direct conflict with one another. Some are more critical than others; some are penned by active Wikipedians, others by people who want nothing to do with the project. Famous Wikipedia critics, some known for their troll status, such as Jon Awbrey and Gregory Kohs, who initially participated in the CPOV discussion mailing list, were approached to contribute to this reader but declined the invitation. It is our hope that the essays, art pieces, reports, interviews, and conference documents assembled here will widen, revitalize, and refocus debates around Wikipedia. Welcome to Critical Point of View. Read and enjoy, copy, alter, and critique!

THE ARGUMENT ENGINE

JOSEPH REAGLE

In a *Wired* commentary by Lore Sjöberg, Wikipedia production is characterized as an 'argument engine' that is so powerful 'it actually leaks out to the rest of the web, spontaneously forming meta-arguments about itself on any open message board'. [1] These arguments also leak into, and are taken up by the champions of, the print world. For example, Michael Gorman, former president of the American Library Association, uses Wikipedia as an exemplar of a dangerous 'Web 2.0' shift in learning. I frame such criticism of Wikipedia by way of a historical argument: Wikipedia, like other reference works before it, has triggered larger social anxieties about technological and social change. This prompts concerns about the integrity of knowledge and the sanctity of the author, and is evidence for the presence of hype, punditry, and a generational gap in the discourse about Wikipedia. [2]

Wars over Reference Works

Wikipedia has been the subject of much consternation and criticism. In 2004, former editor of *Britannica*, Robert McHenry, wrote, 'The user who visits Wikipedia to learn about some subject, to confirm some matter of fact, is rather in the position of a visitor to a public restroom. It may be obviously dirty, so that he knows to exercise great care, or it may seem fairly clean, so that he may be lulled into a false sense of security. What he certainly does not know is who has used the facilities before him'.[3] In 2007, Michael Gorman, former president of the American Library Association, wrote that blogs and Wikipedia were like a destructive 'digital tsunami' for learning. In his own blog essay entitled 'Jabberwiki', Gorman criticized those who contribute to, or even use, the 'fundamentally flawed resource' and that 'a professor who encourages the use of Wikipedia is the intellectual equivalent of a dietician who recommends a steady diet of Big Macs with everything'.[4] More recently, Mark Helprin, author of *Digital Barbarism*, argues that the difference between authorship and wiki contributors 'is like the difference between a lifelong marriage and a quick sexual encounter at a bacchanal with someone whose name you never know and face you will not remember, if, indeed, you have actually seen it'.[5]

1. Lore Sjberg, 'The Wikipedia FAQK', 19 April 2006, http://www.wired.com/software/webservices/commentary/alttext/2006/04/70670.
2. This text is an update to a presentation of material originally appearing in Joseph Reagle, *Good Faith Collaboration: The Culture of Wikipedia*, Cambridge: MIT Press, 2010.
3. Robert McHenry, 'The Faith-Based Encyclopedia', 15 November 2004, http://www.techcentralstation.com/111504A.html.
4. Michael Gorman, 'Jabberwiki: the Educational Response, Part II', Britannica Blog: Web 2.0 Forum, 26 June 2007, http://www.britannica.com/blogs/2007/06/jabberwiki-the-educational-response-part-ii/.
5. Mark Helprin, *Digital Barbarism: A Writer's Manifesto*, New York: Harper, 2009.

While Wikipedia critics are becoming ever more colorful in their metaphors, Wikipedia is not the only reference work to receive such scrutiny. To understand criticism about Wikipedia, especially that from Gorman, it is useful to first consider the history of reference works relative to the varied motives of producers, their mixed reception by the public, and their interpretation by scholars.

While reference works are often thought to be inherently progressive, a legacy perhaps of the famous French *Encyclopédie*, this is not always the case. Dictionaries were frequently conceived of rather conservatively. For example, when the French Academy commenced compiling a national dictionary in the 17th century, it was with the sense that the language had reached perfection and should therefore be authoritatively 'fixed', as if set in stone. [6] Also, encyclopedias could be motivated by conservative ideologies. Johann Zedler wrote in his 18th century encyclopedia that 'the purpose of the study of science… is nothing more nor less than to combat atheism, and to prove the divine nature of things'. [7] *Britannica*'s George Gleig, wrote in *Encyclopaedia Britannica*'s (3rd edition) dedication that: 'The French *Encyclopédie* has been accused, and justly accused, of having disseminated far and wide the seeds of anarchy and atheism. If the *Encyclopaedia Britannica* shall in any degree counteract the tendency of that pestiferous work, even these two volumes will not be wholly unworthy of Your Majesty's attention'.[8] Hence, reference works are sometimes conceived and executed with a purposefully ideological intention.

Beyond the motives of their producers, reference works sometime prompt a mixed reception. In early encyclopedias, women often merited only a short mention as the lesser half of man. However, with the publication of the first edition of *Britannica*, one encounters the possibility of change as well as a conservative reaction: the article on midwifery was so direct, particularly the illustrations of the female pelvis and fetus, that many saw it as a public scandal; [9] King George III ordered the 40-page article destroyed, pages and plates. [10] Across the channel, one can see that even the French Royals had a complicated relationship with the *Encyclopédie*, wishing they had the reference on hand during a dinner party discussion about the composition of gunpowder and silk stockings. [11] Furthermore, the *Encyclopédie* was both censored by France's chief censor and allegedly protected by him, as when he warned Diderot that he had just ordered work on the encyclopedia to be confiscated. [12] Consequently, reference works are understood and discussed relative to larger social concerns.

6. Daniel Headrick, *When Information Came of Age*, Oxford: Oxford University Press, 2000, p. 145.
7. Ibid.
8. Herman Kogan, *The Great EB: the Story of the Encyclopaedia Britannica*, Chicago: University Of Chicago Press, 1958.
9. Tom McArthur, *Worlds of Reference: Lexicography, Learning, and Language from the Clay Tablet to the Computer*, Cambridge, UK: Cambridge University Press, 1986, p. 107. A replication of these plates is provided in Kogan, *The Great EB*.
10. Foster Stockwell, *A History of Information Storage and Retrieval*, Jefferson, NC: Macfarlane, 2001, p. 111.
11. Ibid, p. 90.
12. Robert Darnton, *The Business of Enlightenment: A Publishing History of the Encyclopédie*, Cambridge: The Belknap Press of Harvard University, 1979, pp. 9-13.

Finally, scholars, too, have varied interpretations of references works. Foster Stockwell argues the *Encyclopédie*'s treatment of crafts was liberatory in that it helped set in motion the downfall of the royal family and the rigid class system.[13] But Cynthia Koep argues it was an attempt 'on the part of the dominant, elite culture to control language and discourse: in our case, the editors of the *Encyclopédie* expropriating and transforming work techniques'.[14] Therefore we should understand debate about reference works to be as revealing about society as the work itself. As Harvey Einbinder writes in the introduction to his critique of *Britannica*: 'since an encyclopedia is a mirror of contemporary learning, it offers a valuable opportunity to examine prevailing attitudes and beliefs in a variety of fields'.[15] Similarly, for contemporary debate, Clay Shirky, a theorist of social software, observes: 'Arguments about whether new forms of sharing or collaboration are, on balance, good or bad reveal more about the speaker than the subject'.[16]

Hence, reference works cannot be assumed to have always been progressive and are in fact motivated and received with varied sentiments. The best example of this insight can be seen in Herbert Morton's fascinating *The Story of Webster's Third: Philip Gove's Controversial Dictionary and Its Critics*.[17] Perhaps the primary reason for the controversy associated with this dictionary was that it appeared at a time of social tumult. A simplistic rendering of the 1960s holds that progressives were seeking to shake up what conservatives held dear. Yet those working on the *Third* were not a band of revolutionaries. Unlike some other examples, there is little evidence of ideological intentions. For example, its editor, Philip Gove, made a number of editorial decisions to improve the dictionary. And while lexicographers might professionally differ with some of his choices, such as the difficult pronunciation guide or the sometimes awkward technique of writing the definition as a single sentence, these were lexicographic decisions. It was the social context that largely defined the tenor of the controversy. For example, the appearance of the word 'ain't' was a popular target of complaint. However, 'ain't' appeared in the hollowed Second edition of 1934 and had, in fact, appeared in Webster dictionaries since 1890. Furthermore, 'ain't' as a contraction of 'have not' was labeled by the *Third* as substandard. 'Ain't' as a contraction of 'are not', 'is not', and 'am not' was qualified as being 'disapproved by many and more common in less educated speech, used orally in most parts of the US by many cultivated speakers esp. in the phrase ain't I'.[18] Both editions, when published, attempted to reflect contemporary discourse and the latest advances in lexicography. So, *Webster's Second* wasn't inherently conservative relative to the *Third*, only dated.

13. Stockwell, p. 89.
14. Cynthia Koepp, 'Making Money: Artisans and Entrepreneurs and Diderot's Encyclope'Die', in Daniel Brewer, *Using the Encyclopédie*, Oxford: Voltaire Foundation, 2002, p. 138.
15. Harvey Einbinder, *The Myth of the Britannica*, New York: Grove Press, 1964, p. 3.
16. Clay Shirky, *Here Comes Everybody: the Power of Organizing without Organizations*, New York: Penguin Press, 2007, p. 297.
17. Herbert Charles Morton, *The Story of Webster's Third: Philip Gove's Controversial Dictionary and Its Critics*, Cambridge: Cambridge University Press, 1994.
18. Philip Gove, *Webster's Third New International Dictionary*, Unabridged, Merriam-Webster, 1961.

Consequently, to properly understand the criticism of Wikipedia below, one should appreciate that discourse about Wikipedia is as much a reflection of wider society as the intentions of those who make it.

Criticisms of Wikipedia and 'Web 2.0'

Not surprisingly, though worth a chuckle nonetheless, an informative resource on Wikipedia criticism is its own 'Criticism of Wikipedia' article. It contains the following dozen or so subheadings: Criticism of the content: Accuracy of information; Quality of the presentation; Systemic bias in coverage; Sexual content; Exposure to vandals; Privacy concerns; Criticism of the community: Jimmy Wales' role; Selection of editors; Lack of credential verification and the Essjay controversy; Anonymity of editors; Editorial process; Social stratification; Plagiarism concerns.[19]

Those are substantive concerns raised about Wikipedia, each interesting in its own way, many of which are responded to on another page.[20] Also, much of the specific complaints are part of a more general criticism in which Wikipedia is posed as representative of an alleged '2.0' shift toward a hive-like 'Maoist' collective intelligence. The term Web 2.0, unavoidable in a discussion about Wikipedia, is attributed to a conversation about the naming of a conference in 2004 to discuss the reemergence of online commerce after the collapse of the 1990s 'Internet bubble'. Tim O'Reilly, technology publisher, writes that chief among Web 2.0's 'rules for success' is to: 'Build applications that harness network effects to get better the more people use them. (This is what I've elsewhere called "harnessing collective intelligence".)'[21] However, many of the platforms claimed for Web 2.0 preceded it, including Amazon, Google, and Wikipedia. Ward Cunningham launched the first wiki in 1995! So, I'm forced to agree with Robert McHenry, former editor-in-chief of *Britannica*, that 'Web 2.0' is a marketing term and shorthand 'for complexes of ideas, feelings, events, and memories' that can mislead us, much like the term 'the 60s'.[22]

Fortunately, while unavoidable, one can substantiate the notion of 'Web 2.0' by focusing on *user-generated content*. Clay Shirky, in *Here Comes Everybody,* argues we are moving from a model of 'filter then publish' toward 'publish then filter'; filtering before was by publishers, today it is by one's peers.[23] This seems to be the most important feature of '2.0', one represented by Craigslist postings, Amazon book reviews, blog entries, and Wikipedia articles.

19. Wikipedia contributors, 'Criticism of Wikipedia', http://en.wikipedia.org/?oldid=393467654, accessed 28 October 2010.
20. Wikipedia contributors, 'Wikipedia: Replies to Common Objections', http://en.wikipedia.org/?oldid=382875311, accessed 4 September 2010.
21. Tim O'Reilly, 'Web 2.0 Compact Definition: Trying Again', O'Reilly Radar, 10 December 2006, http://radar.oreilly.com/archives/2006/12/web-20-compact.html; see Paul Graham, 'Web 2.0', http://paulgraham.com/web20.html; Alex Krupp, 'The Four Webs: Web 2.0, Digital Identity, and the Future of Human Interaction', http://www.alexkrupp.com/fourwebs.html.
22. Robert McHenry, 'Web 2.0: Hope or Hype?', Britannica Blog: Web 2.0 Forum, 25 June 2007, http://www.britannica.com/blogs/2007/06/web-20-hope-or-hype/.
23. Shirky, *Here Comes Everybody*.

The production of content by Shirky's 'everybody' or Wikipedia's 'anyone' is what Wikipedia's collaborative culture facilitates and what its critics lament, particularly with respect to how we conceive of knowledge and ourselves.

The Integrity of Knowledge

Index cards, microfilm, and loose-leaf binders inspired documentalists of the early 20th century to envision greater information access. Furthermore, these technologies had the potential to change how information was thought of and handled. Belgian documentalist Paul Otlet's *monographic principle* recognized that with technology one would be able to 'detach what the book amalgamates, to reduce all that is complex to its elements and to devote a page [or index card] to each'. [24] (The incrementalism frequently alluded to in Wikipedia production is perhaps an instance of this principle in operation.) Similarly, Otlet's Universal Decimal Classification system would allow one to find these fragments of information easily. These notions of decomposing and rearranging information are again found in current Web 2.0 buzzwords such as 'tagging', 'feeds', and 'mash-ups', or the popular Apple slogan 'rip, mix, and burn'. [25] And critics object.

Larry Sanger, Wikipedia co-founder and present-day apostate, is still appreciative of open contribution but laments that we have failed to integrate it with expert guidance. In an article entitled 'Individual Knowledge in the Internet Age', Sanger responds to three common strands of current thought about education and the internet: that memorization is no longer important, group learning is superior to outmoded individual learning, and co-constructed knowledge by members of the group is superior to lengthy and complex books. Sanger critiques these claims and argues for a traditional liberal arts education: a good education is acquired by becoming acquainted with original sources, classic works, and reading increasingly difficult and important books. [26] Otherwise, Sanger fears that:

> in the place of a creative society with a reasonably deep well of liberally educated critical thinkers, we will have a society of drones, encultured by hive minds, who were able to work together online but who are largely innocent of the texts and habits of study that encourage deep and independent thought. We will be bound by the prejudices of our 'digital tribe', ripe for manipulation by whoever has the firmest grip on our dialogue. [27]

Michael Gorman did not launch his career as a Web 2.0 curmudgeon with a blog entry about Wikipedia; he began with an opinion piece in the *Los Angeles Times*. In his first attack,

24. Paul Otlet, 'Transformations in the Bibliographical Apparatus of the Sciences', in W. Boyd Rayward, *International Organization and Dissemination of Knowledge: Selected Essays of Paul Otlet*, Amsterdam: Elsevier, 1990, p. 149.
25. Kathy Bowrey and Matthew Rimmer, 'Rip, Mix, Burn: The Politics of Peer to Peer and Copyright Law', *First Monday* (July 2005), http://firstmonday.org/htbin/cgiwrap/bin/ojs/index.php/fm/article/view/1456/1371.
26. Larry Sanger, 'Individual Knowledge in the Internet', *Educause Review* (March 2010): 14-24, http://www.educause.edu/EDUCAUSE+Review/EDUCAUSEReviewMagazineVolume45/IndividualKnowledgeintheIntern/202336.
27. Ibid, p. 23.

prompted by the 'boogie-woogie Google boys' claim that the perfect search would be like 'the mind of God', Gorman lashes out at Google and its book-scanning project. His concern was not so much about the possible copyright infringement of scanning and indexing books, which was the dominant focus of discussion at the time, but the type of access it provided. Gorman objects to full-text search results that permit one to peruse a few pages on the screen:

> The books in great libraries are much more than the sum of their parts. They are designed to be read sequentially and cumulatively, so that the reader gains knowledge in the reading. [...] The nub of the matter lies in the distinction between information (data, facts, images, quotes and brief texts that can be used out of context) and recorded knowledge (the cumulative exposition found in scholarly and literary texts and in popular nonfiction). When it comes to information, a snippet from Page 142 might be useful. When it comes to recorded knowledge, a snippet from Page 142 must be understood in the light of pages 1 through 141 or the text was not worth writing and publishing in the first place. [28]

From this initial missive, Gorman's course of finding fault with anything that smelled of digital populism was set and would eventually bring him to Wikipedia. (Ironically, he became an exemplar of the successful opinion blogger: shooting from the hip, irreverent, and controversial.)

Yet others counter Gorman's disdain for the digital. Kevin Kelly, technology proponent and founding editor of *Wired*, resurrected the spirit of the *monographic principle* in a May 2006 *New York Times Magazine* essay about the 'liquid version' of books. Instead of index cards and microfilm, the liquid library is enabled by the link and the tag, maybe 'two of the most important inventions of the last 50 years'. [29] Kelly noted that the ancient Library of Alexandria was evidence that the dream of having 'all books, all documents, all conceptual works, in all languages' available in one place is an old one; now it might finally be realized. Despite being unaware that the curtain was raised almost a century ago, his reprise is true to Otlet's vision:

> The real magic will come in the second act, as each word in each book is cross-linked, clustered, cited, extracted, indexed, analyzed, annotated, remixed, reassembled and woven deeper into the culture than ever before. In the new world of books, every bit informs another; every page reads all the other pages. [...] At the same time, once digitized, books can be unraveled into single pages or be reduced further, into snippets of a page. These snippets will be remixed into reordered books and virtual bookshelves. [30]

It's not hard to see Wikipedia as a 'reordered book' of reconstituted knowledge. Gorman, probably familiar with some of the antecedents of the liquid library given his skepticism of microfilm, considers such enthusiasm to be ill founded: 'This latest version of Google hype

28. Michael Gorman, 'Google and God's Mind: the Problem Is, Information Isn't Knowledge', *Los Angeles Times*, 17 December 2004.
29. Kevin Kelly, 'Scan This Book! What Will Happen to Books? Reader, Take Heart! Publisher, Be Very, Very Afraid. Internet Search Engines Will Set Them Free. A Manifesto', *The New York Times Magazine*, 14 May 2006, p. 2.
30. Ibid, p. 2-3.

will no doubt join taking personal commuter helicopters to work and carrying the Library of Congress in a briefcase on microfilm as "back to the future" failures, for the simple reason that they were solutions in search of a problem'. [31] Conversely, author Andrew Keen fears it is a problem in the guise of a solution, claiming the liquid library 'is the digital equivalent of tearing out the pages of all the books in the world, shredding them line by line, and pasting them back together in infinite combinations. In his [Kelly's] view, this results in "a web of names and a community of ideas". In mine, it foretells the death of culture'. [32]

Yet Kevin Drum, a blogger and columnist, notes that this dictum of sequentially reading the inviolate continuity of pages isn't even the case in the 'brick-and-mortar library' today: 'I browse. I peek into books. I take notes from chapters here and there. A digitized library allows me to do the same thing, but with vastly greater scope and vastly greater focus'. [33] As far back as 1903 Paul Otlet felt the slavish dictates of a book's structure were a thing of the past: 'Once one read; today one refers to, checks through, skims. Vita brevis, ars longa! There is too much to read; the times are wrong; the trend is no longer slavishly to follow the author through the maze of a personal plan which he has outlined for himself and which in vain he attempts to impose on those who read him'. [34] In fact, scholars have always had varied approaches to reading. [35] Francis Bacon (1561–1626) noted that 'Some books are to be tasted, others to be swallowed, and some few to be chewed and digested'. [36] A 12th-century manuscript on 'study and teaching' recommended that a prudent scholar 'hears every one freely, reads everything, and rejects no book, no person, no doctrine', but 'If you cannot read everything, read that which is more useful'. [37] Four centuries later, debates about the integrity of knowledge as mediated by technology continue.

Respect for the Individual and Author

One of the exciting activities contemporary network technology is thought to facilitate is collaboration, as seen in Howard Rheingold's 2002 *Smart Mobs: The Next Social Revolution.* [38] In this book Rheingold argues for new forms of emergent social interaction resulting from

31. Gorman, 'Google and God's Mind', p. 2.
32. Andrew Keen, *The Cult of the Amateur: How Today's Internet Is Killing Our Culture*, New York: Doubleday, 2007, p. 57.
33. Kevin Drum, 'Google and the Human Spirit: a Reply to Michael Gorman', *Washington Monthly* (17 December 2004).
34. Paul Otlet, 'The Science of Bibliography and Documentation', in W. Boyd Rayward, *International Organization and Dissemination of Knowledge: Selected Essays of Paul Otlet*, Amsterdam: Elsevier, 1990, p. 79.
35. Adrian Johns, 'The Birth of Scientific Reading', *Nature* 409, number 287 (18 January 2001); Ann Blair, 'Reading Strategies for Coping with Information Overload Ca. 1550-1700', *Journal of the History of Ideas* 64, number 1 (2003): 11–28.
36. Francis Bacon, 'Of Studies', in Edwin A. Abbott, *Bacon's Essays; With Introduction, Notes, and Index*, London: Longman's, 1879, p. 189.
37. Hugh Of St. Victor, 'The Seven Liberal Arts: on Study and Teaching (Twelfth Century)', in James Bruce Ross and Mary Martin McLaughlin (eds), *The Portable Medieval Reader*, Penguin, 1977, pp. 584-585.
38. Howard Rheingold, *Smart Mobs: The Next Social Revolution*, Cambridge: Perseus Publishing, 2002.

mobile telephones, pervasive computing, location-based services, and wearable computers. Two years later James Surowiecki makes a similar argument, but instead of focusing on the particular novelty of technological trends, he engages more directly the social science of group behavior and decision-making. [39] In *The Wisdom of Crowds*, Surowiecki argues that groups of people can make very good decisions when there is diversity, independence, decentralization, and appropriate aggregation within the group. This works well for problems of cognition (where there is a single answer) and coordination (where an optimal group solution arises from individual self-interest, but requires feedback), but less so for cooperation (where an optimal group solution requires trust and group orientation, i.e., social structure or culture). Some Wikipedia critics think the collective intelligence model might be applicable, but they are repulsed by both process and result.

Gorman, the acerbic librarian mentioned earlier, writes: 'The central idea behind Wikipedia is that it is an important part of an emerging mass movement aimed at the "democratization of knowledge" – an egalitarian cyberworld in which all voices are heard and all opinions are welcomed'. [40] However, the underlying '"wisdom of the crowds" and "hive mind" mentality is a direct assault on the tradition of individualism in scholarship that has been paramount in Western societies'. [41] Furthermore, whereas this enthusiasm may be nothing more than easily dismissible 'technophiliac rambling', 'there is something very troubling about the bleak, dehumanizing vision it embodies – "this monster brought forth by the sleep of reason"'. In a widely read and discussed essay entitled 'Digital Maoism: The Hazards of the New Online Collectivism', Jaron Lanier, computer scientist and author, concedes that decentralized production can be effective at a few limited tasks, but that we must also police mediocre and malicious contributions. Furthermore, the greatest problem was that the 'hive mind' leads to a loss of individuality and uniqueness: 'The beauty of the Internet is that it connects people. The value is in the other people. If we start to believe the Internet itself is an entity that has something to say, we're devaluing those people and making ourselves into idiots'. [42]

Four years later, Lanier would publish a follow-up book entitled *You Are Not a Gadget: A Manifesto*. In the book he again argues that emphasizing the crowd means deemphasizing individuals and 'when you ask people not to be people, they revert to bad mob like behaviors'. [43] Lanier furthermore likens discussion of crowds and collectives as a form of 'anti-human rhetoric' and claims 'information is alienated expertise'. [44] Hence, Wikipedia prompts questions as to whether technologically mediated collaboration should be welcomed or lamented.

39. James Surowiecki, *The Wisdom of Crowds*, New York: Doubleday, 2004.
40. Michael Gorman, 'Jabberwiki: the Educational Response, Part I', Britannica Blog: Web 2.0 Forum, 25 June 2007, p. 4, http://www.britannica.com/blogs/2007/06/jabberwiki-the-educational-response-part-i/.
41. Michael Gorman, 'Web 2.0: the Sleep of Reason, Part II', Britannica Blog: Web 2.0 Forum, 12 June 2007, http://www.britannica.com/blogs/2007/06/web-20-the-sleep-of-reason-part-ii/.
42. Jaron Lanier, 'Digital Maoism: the Hazards of the New Online Collectivism', Edge 183, 30 May 2006, http://www.edge.org/documents/archive/edge183.html.
43. Jaron Lanier, *You Are Not a Gadget: A Manifesto*, New York: Alfred A. Knopf, 2010, p. 19.
44. Ibid, pp. 26-29.

Hype

One of the most august and harshest critics encountered in Morton's history of *Webster's Third*, Jacques Barzun, thought it extraordinary and worth bragging about that, for the first time in his experience, the editorial board of the distinguished *American Scholar* unanimously condemned a work and knew where its members 'stood on the issue that the work presented to the public', even though 'none of those present had given the new dictionary more than a casual glance'. [45] Morton aptly captures the irony:

> It is perplexing that Barzun did not see that his statement invited an entirely contrary interpretation – that it is equally 'remarkable' for a board of scholars to decide on an unprecedented declaration of principle without examining the contents of the work they decried and without debating contrary views. They acted solely on the basis of what the dictionary's critics had written, much of which had been attacked as demonstrably wrong in its facts. [46]

One sometimes gets a similar impression of the discourse about Wikipedia today. Indeed, Michael Gorman recognizes as much at least towards those he criticizes when he notes that proponents of Web 2.0 are subject to hype, or 'a wonderfully modern manifestation of the triumph of hope and boosterism over reality'. [47]

Wikipedia critics claim that technology has inspired hyperbole. In response to an infamous incident in which John Seigenthaler (rightfully) complained about fabrications in his Wikipedia biographical article, journalist Andrew Orlowski speculates that resulting controversy 'would have been far more muted if the Wikipedia project didn't make such grand claims for itself'. [48] Similarly, journalist Nick Carr writes that what 'gets my goat about Sanger, Wales, and all the other pixel-eyed apologists for the collective mediocritization of culture' is that they are 'all in the business of proclaiming the dawn of a new, more perfect age of human cognition and understanding, made possible by the pulsing optical fibers of the internet'. [49] Jaron Lanier, coiner of the term Digital Maoism, concurs: 'the problem is in the way the Wikipedia has come to be regarded and used; how it's been elevated to such importance so quickly'. [50] Building on Lanier, Gorman speaks to the hype, and many of his other criticisms:

> Digital Maoism is an unholy brew made up of the digital utopianism that hailed the Internet as the second coming of Haight-Ashbury – everyone's tripping and it's all free; pop sociology derived from misreading books such as James Surowiecki's 2004 *The Wisdom of Crowds: Why the Many are Smarter Than the Few* and *How Collective Wisdom Shapes Business, Economies, Societies, and Nations*; a desire to avoid individual responsibility; anti-intellectualism – the common disdain for pointy headed professors; and the corporatist 'team' mentality that infests much modern management theory. [51]

45. Jacques Barzun, 'The Scholar Cornered: What Is the Dictionary?', *The American Scholar* (Spring 1963): 176.
46. Morton, *The Story of Webster's Third*, p. 241.
47. Michael Gorman, 'Revenge of the Blog People!', *Library Journal* (15 February 2005), http://www.libraryjournal.com/article/CA502009.html.
48. Andrew Orlowski, 'There's No Wikipedia Entry for "Moral Responsibility"', *The Register*, 13 December 2005, http://www.theregister.co.uk/2005/12/12/wikipedia_no_responsibility/.
49. Nicholas Carr, 'Stabbing Polonius', 26 *Rough Type*, April 2007, http://www.roughtype.com/archives/2007/04/sanger_1.php.
50. Lanier, 'Digital Maoism'.

Mark Helprin, in *Digital Barbarism*, likens Wikipedia to the Great Soviet Encyclopedia wherein the Kremlin sent out doctored photographs and updated pages to rewrite history: 'Revision as used by the Soviets was a tool to disorient and disempower the plasticized masses. Revision in the wikis is an inescapable attribute that eliminates the fixedness of fact. Both the Soviets and the wiki builders imagined and imagine themselves as attempting to reach the truth'. [52] Likewise, Carr continues his criticism by noting: 'Whatever happens between Wikipedia and Citizendium, here's what Wales and Sanger cannot be forgiven for: They have taken the encyclopedia out of the high school library, where it belongs, and turned it into some kind of totem of "human knowledge". Who the hell goes to an encyclopedia looking for "truth", anyway?' [53]

Of course, one must ask to what extent has Wikipedia made 'such grand claims for itself?' While Wales and the Wikimedia Foundation have committed to an ambitious vision in which 'every single human being can freely share in the sum of all knowledge', no one claims this is close to realization. [54] (Though I think it is a tenable claim to argue Wikipedia has the greatest potential, or is even the closest approximation, towards this goal than any other effort in world history.) Nor does Wikipedia have few, if any, pretensions to 'truth'. As is stressed in the Verifiability policy, 'The threshold for inclusion in Wikipedia is verifiability, not truth – that is, whether readers are able to check that material added to Wikipedia has already been published by a reliable source, not whether we think it is true'. [55] Furthermore, encyclopedias gained their present shine of truth when they were first sold to schools in the middle of the twentieth century. [56] Also, we must remember Wikipedia was not started with the intention of creating a Maoistic hive intelligence. Rather, Nupedia's goal (Wikipedia's non-wiki progenitor) was to produce an encyclopedia that could be available to – not produced by – anyone. When the experiment of allowing anyone to edit on a complementary wiki succeeded beyond its founders' expectations, Wikipedia was born. [57] Journalists, and, later, popular-press authors, seized upon its success as part of a larger theory about technology-related change. For example, Don Tapscott and Anthony Williams reference the wiki phenomenon in the title of

51. Gorman, 'Web 2.0'.
52. Helprin, *Digital Barbarism*, p. 65.
53. Carr, 'Stabbing Polonius'.
54. Wikimedia Foundation, 'Vision', 1 September 2007, http://wikimediafoundation.org/wiki/Vision.
55. Wikipedia contributors, 'Wikipedia: Verifiability', 14 November 2008, http://en.wikipedia.org/?oldid=251829388.
56. Stockwell, *A History of Information Storage and Retrieval*, pp. 133-134; also, see Einbinder, *The Myth of the Britannica*, pp. 323-325.
57. Joseph Reagle, 'Wikipedia: the Happy Accident', *Interactions* (New York) 16, number 3 (2009): 42-45, http://doi.acm.org/10.1145/1516016.1516026.

their book *Wikinomics*;[58] they use a brief account of Wikipedia to launch a much larger case of how businesses should learn from and adapt their strategies to new media and peer collaboration. In *Infotopia*, Cass Sunstein engages the Wikipedia phenomenon more directly and identifies some strengths of this type of group decision-making and knowledge production, but also illuminates potential faults.[59] Using Wikipedia as a metaphor has become so popular that Jeremy Wagstaff notes that comparing something to Wikipedia is 'The New Cliché': 'You know something has arrived when it's used to describe a phenomenon. Or what people hope will be a phenomenon'.[60]

However, at the launch of Wikipedia, Ward Cunningham, Larry Sanger, and Jimmy Wales all expressed some skepticism regarding its success as an encyclopedia, a conversation that continued among Wikipedia supporters until at least 2005.[61] And as evidence of early modesty, consider the following message from Sanger at the start of Wikipedia: 'Suppose that, as is perfectly possible, Wikipedia continues producing articles at a rate of 1,000 per month. In seven years, it would have 84,000 articles. This is entirely possible; Everything2, which uses wiki-like software, reached 1,000,000 "nodes" recently'.[62]

Some thought this was a stretch. In 2002, online journalist Peter Jacso included Wikipedia in his 'picks and pan' column: he 'panned' Wikipedia by likening it to a prank, joke, or an 'outlet for those who pine to be a member in some community'. Jacso dismissed Wikipedia's goal of producing 100,000 articles with the comment: 'That's ambition', as this 'tall order' was twice the number of articles in the sixth edition of the Columbia Encyclopedia.[63] Yet, in September 2007, shy of its seven-year anniversary, the English Wikipedia had two million articles (over twenty times Sanger's estimate), proving that making predictions about Wikipedia is definitely a hazard – prompting betting pools on when various million-article landmarks will be reached.[64]

58. Don Tapscott and Anthony D. Williams, *Wikinomics: How Mass Collaboration Changes Everything*, New York: Portfolio, 2006.
59. Cass R. Sunstein, *Why Societies Need Dissent*, Cambridge: Harvard University Press, 2003.
60. Jeremy Wagstaff, 'The New Cliche: "It's the Wikipedia of..."', Loose Wire, 29 September 2005, http://loosewire.typepad.com/blog/2005/09/the_new_cliche_.html.
61. Larry Sanger, 'The Early History of Nupedia and Wikipedia: a Memoir', 18 April 2005, http://features.slashdot.org/article.pl?sid=05/04/18/164213; PeopleProjectsAndPatterns, 'Wikipedia', Cunningham & Cunningham, 2007, http://www.c2.com/cgi/wiki?WikiPedia; danah boyd, 'Academia and Wikipedia', Many-to-Many, 4 January 2005, http://many.corante.com/archives/2005/01/04/academia_and_wikipedia.php; Clay Shirky, 'Wikipedia: Me on Boyd on Sanger on Wales', Many-to-Many, 5 January 2005, http://many.corante.com/archives/2005/01/05/wikipedia_me_on_boyd_on_sanger_on_wales.php.
62. Larry Sanger, 'Britannica or Nupedia? The Future of Free Encyclopedias', Kuro5hin, 25 July 2001, http://www.kuro5hin.org/story/2001/7/25/103136/121.
63. Peter Jacso, 'Peter's Picks & Pans', Online 26 (Mar/Apr 2002): 79-83.
64. Wikimedia Foundation, 'Wikipedia Reaches 2 Million Articles', http://wikimediafoundation.org/wiki/Wikipedia_Reaches_2_Million_Articles, accessed 13 September 2007; Wikipedia Contributors, 'Wikipedia: Million Pool', http://en.wikipedia.org/?oldid=149380521, accessed 7 September 2007.

Granting that technology pundits make exaggerated claims (but not always to the extent that critics allege), prominent Wikipedians tend to be more moderate in their claims: in response to the Seigenthaler incident in 2005, Wales cautioned that, while they wanted to rival *Britannica* in quantity and quality, that goal had not yet been achieved and that Wikipedia was 'a work in progress'.[65] And of the ten things you might 'not know about Wikipedia':

> We do not expect you to trust us. It is in the nature of an ever-changing work like Wikipedia that, while some articles are of the highest quality of scholarship, others are admittedly complete rubbish. We are fully aware of this. We work hard to keep the ratio of the greatest to the worst as high as possible, of course, and to find helpful ways to tell you in what state an article currently is. Even at its best, Wikipedia is an encyclopedia, with all the limitations that entails. It is not a primary source. We ask you not to criticize Wikipedia indiscriminately for its content model but to use it with an informed understanding of what it is and what it isn't. Also, as some articles may contain errors, please do not use Wikipedia to make critical decisions.[66]

While pundits might seize upon Wikipedia as an example of their argument of dramatic change, most Wikipedia supporters tend to express more surprise than hyped-up assuredness. In response to the Seigenthaler incident in 2005, the British newspaper *The Guardian* characterized Wikipedia as 'one of the wonders of the internet':

> In theory it was a recipe for disaster, but for most of the time it worked remarkably well, reflecting the essential goodness of human nature in a supposedly cynical world and fulfilling a latent desire for people all over the world to cooperate with each other without payment. The wikipedia is now a standard source of reference for millions of people including school children doing their homework and post-graduates doing research. Inevitably, in an experiment on this scale lots of entries have turned out to be wrong, mostly without mal-intent [...]. Those who think its entries should be taken with a pinch of salt should never forget that there is still plenty of gold dust there.[67]

Economist and author John Quiggin notes: 'Still, as Bismarck is supposed to have said "If you like laws and sausages, you should never watch either one being made". The process that produces Wikipedia entries is, in many cases, far from edifying: the marvel, as with democracies and markets, is that the outcomes are as good as they are'.[68] Bill Thompson, BBC digital culture critic, wrote, 'Wikipedia is flawed in the way Ely Cathedral is flawed, imperfect in the way a person you love is imperfect, and filled with conflict and disagreement in the way

65. Burt Helm, 'Wikipedia: "A Work in Progress"', *Business Week Online*, 14 December 2005, http://www.businessweek.com/technology/content/dec2005/tc20051214_441708.htm.
66. Wikipedia contributors, 'Wikipedia: 10 Things You did Not Know about Wikipedia', 3 September 2007, http://en.wikipedia.org/?oldid=155431119, accessed 7 September 2007.
67. The Guardian, 'In Praise of ... the Wikipedia', *The Guardian*, 9 December 2005, http://www.guardian.co.uk/media/2005/dec/08/newmedia.comment.
68. John Quiggin, 'Wikipedia and Sausages', Out Of the Crooked Timber, 1 March 2006, http://crookedtimber.org/2006/03/01/wikipedia-and-sausages/.

a good conference or an effective parliament is filled with argument'.[69] The same sentiment carried through in many of the responses to Jaron Lanier's 'Digital Maoism' article. Yochai Benkler replies, 'Wikipedia captures the imagination not because it is so perfect, but because it is reasonably good in many cases: a proposition that would have been thought preposterous a mere half-decade ago'.[70] Science fiction author and prominent blogger Cory Doctorow writes, 'Wikipedia isn't great because it's like the *Britannica*. The *Britannica* is great at being authoritative, edited, expensive, and monolithic. Wikipedia is great at being free, brawling, universal, and instantaneous'.[71] Kevin Kelly, proponent of the hive mind and liquid library, responds that Wikipedia surprises us because it takes 'us much further than seems possible … because it is something that is impossible in theory, and only possible in practice'.[72]

And Wikipedia defenders are not willing to cede the quality ground altogether. On 14 December 2005, the prestigious science journal *Nature* reported the findings of a commissioned study in which subject experts reviewed forty-two articles in Wikipedia and *Britannica*; it concluded 'the average science entry in Wikipedia contained around four inaccuracies; *Britannica*, about three'.[73] Of course, this catered to the interests of *Nature* readers and a topical strength of Wikipedia contributors. Wikipedia may not have fared so well using a random sampling of articles or on humanities subjects. Three months later, in March 2006, *Britannica* boldly objected to the methodology and conclusions of the Nature study in a press release and large ads in the *New York Times* and the *London Times*. Interestingly, by this time, Wikipedia had already fixed all errors identified in the study – in fact, they were corrected within a month and three days of learning of the specific errors.[74]

Yet the critics don't accept even this more moderated appreciation of Wikipedia as being imperfect but surprisingly good. Orlowski writes such sentiments are akin to saying: 'Yes it's garbage, but it's delivered so much faster!'[75] In a widely read article on Wikipedia for *The New Yorker*, Stacy Schiff reported Robert McHenry, formerly of *Britannica*, as saying, 'We can get

69. Bill Thompson, 'Wikipedia - a Flawed and Incomplete Testament to the Essential Fallibility of Human Nature', BBC - Digital Revolution Blog, 23 July 2009, http://www.bbc.co.uk/blogs/digitalrevolution/2009/07/wikipedia.shtml.
70. Yochai Benkler, 'On "Digital Maoism"', Edge, 30 May 2006, http://www.edge.org/discourse/digital_maoism.html
71. Cory Doctorow, 'On "Digital Maoism"', Edge, 30 May 2006, http://www.edge.org/discourse/digital_maoism.html.
72. Kevin Kelly, 'On "Digital Maoism"', Edge, 30 May 2006, http://www.edge.org/discourse/digital_maoism.html.
73. Jim Giles, 'Internet Encyclopaedias Go Head to Head', *Nature*, 14 December 2005, http://www.nature.com/nature/journal/v438/n7070/full/438900a.html.
74. Nate Anderson, 'Britannica Attacks Nature in Newspaper Ads', Ars Technica, 5 April 2006, http://arstechnica.com/news.ars/post/20060405-6530.html; Wikipedia, 'Wikipedia:External Peer Review/Nature December 2005/Errors', 9 February, 2006, http://en.wikipedia.org/?oldid=38886868 accessed 6 April 2006.
75. Andrew Orlowski, 'Wikipedia Founder Admits to Serious Quality Problems', *The Register*, 18 October, 2005, http://www.theregister.co.uk/2005/10/18/wikipedia_quality_problem/.

the wrong answer to a question quicker than our fathers and mothers could find a pencil'.[76] Carr is willing to concede a little more, but on balance still finds Wikipedia lacking:

> In theory, Wikipedia is a beautiful thing – it has to be a beautiful thing if the Web is leading us to a higher consciousness. In reality, though, Wikipedia isn't very good at all. Certainly, it's useful – I regularly consult it to get a quick gloss on a subject. But at a factual level it's unreliable, and the writing is often appalling. I wouldn't depend on it as a source, and I certainly wouldn't recommend it to a student writing a research paper.[77]

Furthermore, whereas Wikipedia supporters see 'imperfect' as an opportunity to continue moving forward, critics view user-generated content as positively harmful: that 'misinformation has a negative value', or that 'what is free is actually costing us a fortune'.[78] (Perhaps this is a classical case of perceiving a glass to be either half empty or half full.) Or, much like the popular parody of an inspirational poster that declared 'Every time you masturbate, God kills a kitten', Keen concludes: 'Every visit to Wikipedia's free information hive means one less customer for professionally researched and edited encyclopedia such as *Britannica*'.[79] And Carr fears that using the internet to pursue (suspect) knowledge is actually 'making us stupid'.[80]

Although technology can inspire, it can cause others to despair. For some, like Gorman's dismissal of the Library of Congress in a briefcase, the technology may inspire nothing but a 'back to the future' failure. For others, like Keen, the proclaimed implications of the technology are real but a tragedy.

Generation Gap

In the arguments about Wikipedia we can observe a generality of history: change serves some better than others. These arguments seem like those of any generational gap, as Gorman points out:

> Perceived generational differences are another obfuscating factor in this discussion. The argument is that scholarship based on individual expertise resulting in authoritative statements is somehow passé and that today's younger people think and act differently and

76. Robert McHenry, quoted in Stacy Schiff, 'Know It All: Can Wikipedia Conquer Expertise?', *The New Yorker*, 31 July 2006, p. 7, http://www.newyorker.com/archive/2006/07/31/060731fa_fact.
77. Nick Carr, 'The Amorality of Web 2.0', Rough Type, 3 October, 2005, http://www.roughtype.com/archives/2005/10/the_amorality_o.php.
78. Peter Denning et al., 'Inside Risks: Wikipedia Risks', *Communications of the ACM* 48, number 12 (2005): 152, http://www.csl.sri.com/users/neumann/insiderisks05.html#186; Keen, *The Cult of the Amateur*, p. 27.
79. Wikipedia contributors, 'Every Time You Masturbate... God Kills a Kitten', 11 September 2007, http://en.wikipedia.org/?oldid=157104187, accessed 13 September 2007; Keen, *The Cult of the Amateur*, p. 29.
80. Nick Carr, 'Is Google Making Us Stupid?', *Atlantic Monthly*, July 2008, http://www.theatlantic.com/doc/200807/google; a well researched and persuasive argument of detrimental media effects can be found in Mark Bauerlein, *The Dumbest Generation: How the Digital Age Is Stupefied as Young Americans and Jeopardizes Our Future: or, Don't Trust Anyone under 30*, New York: Tarcher/Penguin, 2008.

> prefer collective to individual sources because of their immersion in a digital culture. This is both a trivial argument (as if scholarship and truth were matters of preference akin to liking the Beatles better than Nelly) and one that is demeaning to younger people (as if their minds were hopelessly blurred by their interaction with digital resources and entertainments). [81]

Nonetheless, Gorman manages to sound like an old man shaking his fist when he complains that 'The fact is that today's young, as do the young in every age, need to learn from those who are older and wiser'. [82] Clay Shirky summarizes Gorman's position from the perspective of the new generation: 'according to Gorman, the shift to digital and network reproduction of information will fail unless it recapitulates to the institutions and habits that have grown up around print'. [83] Scott McLemee, a columnist at *Inside Higher Ed*, more amusingly notes: 'The tone of Gorman's remedial lecture implies that educators now devote the better part of their day to teaching students to shove pencils up their nose while Googling for pornography. I do not believe this to be the case. (It would be bad, of course, if it were.)' [84] As a more trivial example of such generational rifts, in 2010 the site Ars Technica posted an article describing research that found that while some cognitive processes degenerate in old age, there are also gains in social conflict reasoning. [85] Larry Sanger, advocate for expert guidance, retweeted a comment on the article 'Older people are wiser than younger people' with his own question, 'Who'da thunk it?' [86] Jaron Lanier makes a more complex generational argument in his book *You Are Not a Gadget*, complaining that it is actually his old friends that are impeding an understanding of the changes afoot today. 'What's gone so stale with Internet culture that a batch of tired rhetoric from my old circle of friends has become sacrosanct?' [87] Considering that encyclopedias have been around for hundreds of years and computers for many decades, he notes: 'Let's suppose that back in the 1980s I had said, "In a quarter century, when the digital revolution has made great progress in computer chips or millions of times faster than they are now, humanity will finally win the prize of being able to write a new encyclopedia..." It would have sounded utterly pathetic'. [88]

I believe, ultimately, some of this conflict might be characterized as 'much ado about nothing'. Both *Webster's Third* and Wikipedia have attracted a fair amount of punditry: reference works are claimed as proxies and hostages in larger battles, and I suspect some of the combatants argue for little other than their own self-aggrandizement. When reading generational polemics I remind myself of Douglas Adams' humorous observation that everything that existed when you were born is considered normal, and you should try to make a career out of anything before your 30th birthday as it is thought to be 'incredibly exciting and creative'. Of course, anything after that is 'against the natural order of things and the beginning of the end of civilisation as we know it until it's been around for about ten years when it gradually turns out to be alright really'. Even so, with every generation we undergo a new round of 'huffing and puffing'. [89] This is because 'old stuff gets broken faster than the new stuff is put in its place', as Clay Shirky notes in a blog entry about the collapse of print journalism. Or, as hypothesized by Steve Weber in his study of open source, the stridency of critics arises because it is easier to see 'what is going away than what is struggling to be born' but that there can be a positive side to 'creative destruction' if we are sufficiently patient. [90]

81. Gorman, 'Web 2.0'.
82. Gorman, 'Jabberwiki'.
83. Clay Shirky, 'Old Revolutions Good, New Revolutions Bad: a Response to Gorman', Many-to-Many, 13 June 2007, http://many.corante.com/archives/2007/06/13/old_revolutions_good_new_revolutions_bad_a_response_to_gorman.php.
84. Scott Mclemee, 'Mass Culture 2.0', *Inside Higher Ed*, 20 June 2007, p. 7, http://insidehighered.com/views/2007/06/20/mclemee.
85. Kate Shaw, 'By Some Measures, Older Really Is Wiser', Ars Technica, 7 April 2010, http://arstechnica.com/science/news/2010/04/by-some-measures-older-really-is-wiser.ars.
86. Larry Sanger, 'RT @Davidkidd Older People Are Wiser Than Younger People. http://Is.Gd/Bjbsx Who'Da Thunk It?', Twitter, 8 April 2010, http://twitter.com/lsanger/status/11828977920.
87. Lanier, *You Are Not a Gadget,* p. 121.
88. Ibid, pp. 121-122.

Conclusion

Reference works can act as 'argument engines', sometimes inheriting the conflicts of the external world they seek to document and being seized upon as exemplars and proxies in those debates. As seen in Morton's history of *Webster's Third*, much of the controversy associated with its publication was about something other than the merits of that particular dictionary. I generalize this argument by looking to the past for how reference works have been involved in a larger conservative versus progressive tension and by asking how Wikipedia might be entangled in a similar debate today.

On this point, the conversation about Wikipedia can be understood with respect to a long-debated question about technology and change: although technology may inspire some toward a particular end, it might also disgust others and affect changes that are not welcome. With respect to technology, I find a concern for the integrity of knowledge and the sanctity of the author, as well as the likely presence of hype, punditry, and a generational gap – if not in biological age, at least with respect to one's sentiments about technology.

89. Douglas Adams, 'How to Stop Worrying and Learn to Love the Internet', *The Sunday Times*, 29 August , 1999, http://www.douglasadams.com/dna/19990901-00-a.html.
90. Clay Shirky, 'Newspapers and Thinking the Unthinkable', 13 March 2009, http://www.shirky.com/weblog/2009/03/newspapers-and-thinking-the-unthinkable/; Steve Weber, *The Success of Open Source*, Cambridge, MA: Harvard University Press, 2004.

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WHAT IS AN ENCYCLOPEDIA?
A BRIEF HISTORICAL OVERVIEW FROM PLINY TO WIKIPEDIA

DAN O'SULLIVAN

Encyclopaedia
1. The circle of learning; a general course of instruction.
2. A literary work containing extensive information on all branches of knowledge, usually arranged in alphabetical order. [1]

Far from a fixed form, the encyclopedia is a particularly mobile genre that has fluctuated widely over centuries and different cultures, influenced by changes in what counts as common knowledge and developments in the technology of the book. The compulsion towards encyclopediaism renders ever-expanding specialist fields of knowledge accessible to a wider public.

Though older works might be included in this genre, the word itself was first used in the West in the 16th century.[2] However, the term 'encyclopedic' need not refer to the actual production of a particular work but to a special discourse aiming in some way for comprehension. We might classify any text as encyclopedic that speculates on its own processes of discovery and arrangement or on the nature of knowledge itself. Today the term is also used more broadly to cover works that discuss the dissemination of knowledge and associated issues. Historically, encyclopedias have tended to be deeply conservative; after all, they involve collecting and repackaging existing text considered worth preserving. But when encyclopedic discourse foregrounds and problematizes its operations, its mission can be quite radical. In the modern era, the list of authors engaged in encyclopedic pursuit includes Bacon and Leibniz, as well as Hegel and Kant. Arguably a list of encyclopedic works published in the 20th century should include not only the well-known multi-volume encyclopedias, but also works by Umberto Eco, Derrida, and Foucault, as well as fictional ones by James Joyce and Borges. Hence, this highly elastic genre requires redefinition depending on the epoch.[3]

When considering the history of encyclopedias in the Western tradition, a useful distinction is discerned in the two alternative definitions given by the *OED*, quoted above. The first derives from the Greek origin of the term – a circle or framework of learning such as would form the

1. *Oxford English Dictionary,* 1st edition, Oxford: Oxford University Press, 1928.
2. The earliest use of the word 'encyclopaedia' in a book's title was in 1559 by Paul Scaliger: Robert Collison, *Encyclopaedias: Their History through the Ages*, New York & London: Hafner, 1964, p. 80.
3. So-called encyclopedic works might also take a physical form. Examples would include medieval mappae mundi, as well as the Wunderkammer of the Renaissance polymath, Athanasius Kircher.

basis of a general education.[4] The second, applying to most encyclopedias published over the last three centuries, implies a work of reference. The difference is between works that must be read in a linear fashion and those merely used to extract particular bits of information. Which of these two purposes were more typical depended partly on the reference tools available at a particular time, with the balance between reading and using altering from papyrus rolls to parchment codices, from manuscript to printed text, and, later, from analog to digital and web-based media. Reference use becomes progressively easier with the development of tools such as chapter headings, page numbers, indices, footnotes, and editorial cross-references.

What follows is a short chronological overview of encyclopedic history, concentrating on half a dozen examples before linking the past with today's digital world, especially Wikipedia. I am concerned with how each encyclopedic pursuit builds on and reinforces, or departs from, the previous standard. This comparative lens also foregrounds both the conservative and the 'radical' nature of the encyclopedic project and allows me, at the end, to briefly assess the radicality, or conservative character, of Wikipedia itself.

Pliny
The most famous encyclopedic work surviving from classical times is Pliny the Elder's *Natural History* in which the author tried to summarize the knowledge available to him.[5] Pliny wrote an introduction to the work in which he proudly quantified his achievement:

> In the thirty-seven books of my *Natural History*, I have included the material derived from reading 2,000 volumes, very few of which scholars ever handle because of the recondite nature of their contents – some 20,000 facts worthy of note, from 100 authors whom I have researched. To these I have added very many facts that my predecessors did not know or that I have subsequently discovered from my own personal experience.[6]

Pliny was a wealthy Roman public official, a member of the equestrian class, and he devoted his spare time to authorship over many years. His nephew tells us that he had his slaves read to him at every spare moment, at mealtimes, on journeys, and in his villa every evening. He continuously made notes, declaring that no book was so terrible that there was nothing useful in it. He was not an originator, but a synthesizer of other peoples' work. Nor did he attempt to evaluate his sources but included everything – old wives' tales and superstitions, as well as attested facts. His self-proclaimed intention was to educate the average reader rather than

4. The term 'encyclopedia' is derived from two Greek words: enkyklios [circular] and paideia [education].
5. Aude Doody, however, has recently cautioned against applying the term 'encyclopedic' to Pliny's work, arguing that our reasons for doing so are heavily dependent on analogy with a later, self-aware genre of encyclopedia entirely unknown in the first century AD: Aude Doody, Pliny's Encyclopedia. *The Reception of the Natural History*, Cambridge: Cambridge University Press, 2010, especially pp. 1-10.
6. *Pliny the Elder. Natural History. A Selection*, trans. John F. Healy, London: Penguin Books, 1991, p. 5.

the intellectual elite. Therefore he rejected the so-called liberal arts such as logic, rhetoric, and arithmetic, all of which had become highly specialized with their own vocabularies, in favor of subjects directly related to everyday life – animals, plants, places, and how people lived and worked.

It seems clear that Pliny did not expect his book to be read from beginning to end. In his dedicatory letter to the Emperor Titus he specifically says this and points out that he has provided a detailed summary of all the topics in the book as a reference aid. Nevertheless, one has to remember that the book in its original form was written on long sheets of papyrus averaging 20 to 30 feet in length that had to be unwound in order to decipher their dense columns of writing. It was impossible to create precise references since different copies of a particular work might be contained in a different number of rolls, let alone the variation in the number of columns and rows within the roll. Papyrus rolls, in fact, were a highly user-unfriendly medium for searching for a particular passage or perusing an entire work. Not until the change from book roll to codex and the subsequent development of various information retrieval tools searching for a particular passage, as opposed to one perusing an entire work, could the task of finding a particular nugget of information from the *Natural History* become a realistic proposition.[7]

Pliny's book became a renown and much used reference work throughout the Middle Ages. As Collison says, 'No self-respecting medieval library was without a copy'. [8] Its popularity continued throughout the Renaissance, but from the 17th century onwards Pliny's status declined as the development of a modern scientific outlook led to indignation at his mistakes and credulity.

Vincent de Beauvais

In the medieval West, scholars produced encyclopedias as digests of the remaining knowledge of the ancient world, together with writings of the early Christian fathers. Such works recycled information gleaned from Pliny and other classical authors but placed it in a Christian framework. The nature of these texts is indicated by some of the metaphors or tropes that encyclopedic authors over the centuries employed to characterize their productions. These included the circle, the mirror, the tree, and the map of knowledge. In other words, medieval encyclopedias conform to the first dictionary definition as given above. These works were intended to encircle and reflect, but also select and control, the potentially disordered mass of factual knowledge so as to render it accessible as an organized, intelligible body. The static figure of the mirror is implicit in the titles of certain encyclopedic works, such as the 13th century *Speculum Maius* [greater mirror] of Vincent de Beauvais, undoubtedly one of the outstanding literary achievements of the entire Middle Ages.

Picturing the encyclopedia as mirror-image implies that there is already an order or system to be discovered in human affairs and nature and that a book can reflect this order, which

7. Not until the fourth century AD did parchment and vellum codices generally begin to replace papyrus scrolls: Steven Roger Fischer, *A History of Writing*, London: Reaktion Books, 2005, p. 244.
8. Collison, p. 26.

is unchanging and originates from God. The encyclopedia was the inventory of God's creation and to study this inventory would lead to an understanding of a divine purpose. Vincent himself ties this idea closely to the encyclopedic project in his prologue:

> Often my mind, raising itself a little from the dregs of worldly thoughts and affections, and climbing as well as it can to the look-out posts of reason, surveys at a single moment as if from a high place the greatness of the creatures, and it also sees the age of the whole world, from the beginning until now, in one glance [...] and then by the intuition of faith it rises somehow to think of the greatness, beauty and perpetuity of the creator himself. [9]

This was a theological version of the ancient Greek concept that material things are really nothing but pale copies of eternal and perfect Platonic forms. An accompanying idea was that, within the hierarchy of being, lower things such as plants or animals reflect the characteristics of elements higher up in the chain. For example, planets represented the various metallic elements to be found on Earth, while particular plants corresponded to parts of the human body and therefore provide remedies for certain ailments. [10]

Vincent was a French scholar who joined the Dominican order around the age of 30, after which he spent the rest of his life compiling a systematized compendium of universal knowledge. He became a chaplain to the French court and was befriended by the king, Louis IX, who encouraged his encyclopedic project. His *Speculum maius* consisted of three parts, one of which, the *Speculum doctrinale*, summarized branches of knowledge ranging from politics, law, and medicine to physics and arithmetic. The *Speculum historiale* was an elaborate chronicle of events from the beginning of the world until his own time, and the *Speculum naturale* was an account of the cosmos based on Genesis, commencing with God and his angels. In the end, the work is said to have comprised 80 'books'. [11] All this was not entirely the work of one man, as Vincent employed an army of young Dominicans to travel to monastic libraries throughout France to collect material.

Vincent was fortunate to have lived when he did. Many scientific and philosophical texts from classical and Hellenistic times had recently been translated from the Arabic and made available to scholars, thus enormously expanding European intellectual horizons. As Robert Fowler explains:

> When the master [Aristotle] and his Arab purveyors finally made their way to northern Europe, it was another case of worlds coming together and creating a shift in mentality, this time of really stupendous proportions. It is no accident that the [13th] century witnessed not only the philosophical and theological achievements of medieval Europe's

9. Quoted by Peter Binkley in *Pre-Modern Encyclopaedic Texts*, Peter Binkley (ed), Leiden, New York, Köln: Brill, 1997, p. 80. Christians derived support from the New Testament for the idea that God can be known through his creation. See, for example, Romans 1.20.
10. There is a lively description of this classical and medieval episteme in Michel Foucault, *The Order of Things*, London: Tavistock, 1974, ch. 2.
11. After Vincent's death a fourth part, the *Speculum morale,* was added.

> greatest thinkers, who responded to the challenge, but also the production of the greatest medieval encyclopaedias, particularly those of Bartholemaeus Anglicus and Vincent of Beauvais. The astounding size of the latter work must in itself have suggested to contemporary scholars that the *omne scibile* [i.e,. the sum of universal knowledge] was greater, indeed much greater, than anyone had realized. [12]

Over the following centuries, the *Speculum* was widely read and hugely influential. Chaucer, for instance, borrowed from it, and it was well known to Renaissance scholars. It was adapted, rendered into English, and printed by William Caxton as *The Mirrour of the World* (1481).

Francis Bacon

By the early 17th century, scholars began to question medieval assumptions about the boundaries of knowledge, aided by a mass of available information and a wider number of published books. Francis Bacon, who enjoyed a highly successful career as lawyer and statesman, came to prominence in this context. He was an active member of Parliament and held various offices of state under Elizabeth and James I, tending always to support authority and the royal prerogative. The peak of his career came in 1618, when he was appointed Lord Chancellor, raised to the peerage, and recognized as one of the two most powerful men in England, under the king. [13] However, throughout his active public life he also pursued scientific and philosophical interests and composed numerous pamphlets and books, many of which remained unpublished during his lifetime.

Bacon attacked the orthodoxy of the day, especially the static world of classical and Biblical authority. He held that natural knowledge is cumulative, a process of discovery, not conservation. He especially outlined his philosophy of science in *Novum Organum* (1620), a text that most contemporaries found opaque and about which James I is supposed to have said that 'it is like the peace of God, that passeth all understanding'. [14] Here, he gave an account of inductive reasoning as the necessary method for all reliable scientific progress. He placed great importance on the language in which knowledge was communicated and on the need to avoid jargon and imprecise use of terms. He believed, too, that the pursuit of knowledge ought to be an open, collaborative effort and not guarded secretly as in the hermetic and alchemical tradition, since all observations and experiments needed to be repeatable. He put emphasis on the proper recording, storing, and transmission of information, recognizing that fallible human memory was inadequate for the task. In his utopian tract, *The New Atlantis*, he described an ideal future society that made lavish provision for groups of scientists to pursue their research for humanity's welfare.

As far as the history of encyclopedias is concerned, Bacon's contribution appeared in an earlier work, *The Advancement of Learning,* that produced a new and original division of universal knowledge. Here, the static notion of the encyclopedia as a mirror of the world

12. Robert Fowler, 'Encyclopaedias: Definitions and Theoretical Problems', in Binkley, p. 5.
13. Markku Peltonen, 'Bacon, Francis, Viscount St Alban (1561-1626)', *Oxford Dictionary of National Biography*. Oxford, England: Oxford University Press, 2007.
14. Thomas Birch, *The Court and Times of James I,* 2 vols., London: Henry Colburn 1848, II, p. 219.

gives way to the more dynamic images of the map or tree of knowledge, a form that, although unchanging in its trunk and main structure, is still capable of producing new branches and twigs. [15] According to Bacon, nature is not merely reflected as in a mirror, but needs progressive interpretation. He contrasted his new system with Aristotle's as open-ended and based on the subjective categories of human faculties. The three great branches of his tree of knowledge were memory, imagination, and reason. Within the field we now call science, he made a distinction between natural philosophy and natural history. Natural philosophy, located under reason, included the mathematical and physical sciences, while natural history, which came under memory, dealt with all descriptions, lists, and taxonomies.

Bacon's political career ended in disaster when his enemies in the House of Commons impeached him, allegedly for taking bribes, although the real reason was probably his support for the king's unpopular fundraising methods. It is believed that his death shortly afterwards came about through attempting a personal scientific experiment, a curious parallel with the death of Pliny. [16] Like Leibniz, Bacon outlined an encyclopedic vision yet never produced his own encyclopedia. He did draw up an ambitious but unrealized plan for a comprehensive work in six parts entitled *Instauratio Magna*. A revised version of *The Advancement of Learning* in Latin was to be its first part, and the already published *Novum Organum* its second. Nevertheless, he had a vast influence on later authors and scientists. Towards the end of the century he became a hero to the founders of the Royal Society who took up his emphasis on experimentation and the inductive method, as well as his advice on the need for a clear and straightforward language to communicate new knowledge. His vision also influenced 18th century authors of encyclopedias, in particular Diderot and d'Alembert, who described him as 'the immortal Chancellor of England'. [17]

Ephraim Chambers

During the period of the Enlightenment, the increasing amount of printed material and the growth of knowledge far beyond its classical limits made it more and more difficult to produce a convincing map of knowledge on which to base the contents of an encyclopedia. Bacon's idea of empirical knowledge as something cumulative and open-ended already had a debilitating effect on this possibility, as had the flood of information from scientific and geographical discoveries and the culture's new determination to record technical knowledge and industrial crafts. This information overload led in turn to skepticism about the capacity of a single individual to compose an encyclopedia or retain its contents in memory. The encyclopedic mind was no longer seen as a realistic goal. From the ancient world until the

15. He also uses the metaphor of a globe: 'Thus have I made as it were a small globe of the intellectual world, as truly and faithfully as I could discover': *The Patience and Advancement of Learning*, London: Printed for Henrie Tomes, http://darkwing.uoregon.edu/~rbear/adv1.htm.
16. Bacon is said to have caught a fatal chill after stuffing a chicken with snow to see if this might act as a preservative. Pliny died from inhaling poisonous fumes while trying to observe the eruption of Vesuvius at close hand.
17. See d'Alembert's eulogy of Bacon in Jean Le Rond d'Alembert, *Preliminary Discourse to the Encyclopaedia of Diderot*, trans. Richard N. Schwab, Chicago: University of Chicago Press, 1995, pp. 74-77.

Renaissance, people admired the retaining powers of human memory, teaching the art of memory as a specific discipline, but now memory was downgraded as inadequate to the demands of the contemporary world.

The early 18th century was the age of the so-called scientific dictionary, a truly radical work because, under the influence of Bacon, it redefined the contents of the encyclopedia to include the latest scientific advances, especially the Newtonian revolution and its implications. Additionally, such dictionaries broke with the thematic arrangements of earlier encyclopedic works and instead adopted an alphabetical format. The possibility of alphabetic classification had certainly been known for centuries, but it took a surprisingly long time to become widely used. Before this could come about, readers had to master skills that to us seem rudimentary but were previously possessed only by an elite. Elizabeth Eisenstein quotes the preface to a word dictionary of 1604 that noted that 'the reader must learne the alphabet, to wit: the order of the letters as they stand'. [18] Alphabetization, as well as being more convenient for the user, was now viewed as an egalitarian method of organization, avoiding systematic hierarchies and reducing all subjects to the same ontological level.

The most successful of these scientific dictionaries was undoubtedly Ephraim Chambers' *Cyclopaedia,* the first edition of which appeared in 1727. Dedicated to king George II, it was priced at four guineas to the 375 people mentioned in its 'List of the Subscribers'. It sold so well despite its expense that its team of publishers is said to have presented Chambers with £500 as a token of appreciation. In less than twenty years, it went into at least eight editions. [19] To judge from its preface, the first edition was a one-man effort, though Chambers certainly employed assistants for later editions.

Richard Yeo singles out Chambers as exemplifying the Enlightenment ideal whereby 'the encyclopedia is closely linked with the emergence of modernity, with assumptions about the public character of information and the desirability of free intellectual and political exchange that became distinctive features of the European Enlightenment'. [20] His work was far more accessible than many earlier encyclopedias, not only because of its alphabetical format but also because it was in English rather than Latin. Furthermore, there were numerous illustrations and an eight-page index. However, Chambers did demand a certain level of education in his readers. Several articles had quotations in foreign languages, and some of the scientific articles assumed mathematical understanding. [21]

18. Elizabeth Eisenstein, *The Printing Press as an Agent of Change*, Cambridge: Cambridge University Press, 1979, p. 89. The first encyclopedic work to embrace a strictly alphabetic order of subjects was Louis Moréri's *Grande Dictionnaire Historique* of 1674, though this, as its name implied, contained mainly historical and biographical information. The first scientific dictionary to do so was Furetière's *Dictionnaire Universel* of 1694. Subsequent scientific dictionaries were all alphabetic.
19. L. E. Bradshaw, 'Ephraim Chambers' Cyclopaedia', in *Notable Encyclopaedias of the Seventeenth and Eighteenth Centuries*, Frank A. Kafker (ed.), Oxford: The Voltaire Foundation, 1981, p. 124.
20. Richard Yeo, *Encyclopaedic Visions*, Cambridge: Cambridge University Press, 2001, p. xii.
21. Bradshaw, p. 128.

Because the first edition of the *Cyclopaedia* was a commercial success, it faced problems of copyright. An act of 1710 for the first time vested legal rights to owners of literary property. Chambers managed to defend himself successfully on two fronts. On the one hand, he argued that he should not be prosecuted for breaches of copyright by those whose publications he borrowed, since he performed a public service by making information universally accessible. On the other hand, he maintained that he himself was a creative author for planning and producing an original work of literature, not a mere abridgment of other's books. Hence he was entitled to be safeguarded legally against piracy and plagiarism. [22]

With Chambers, the encyclopedic project becomes especially self-conscious and discursive. He incorporated the latest scientific research while continuing the search for a unified map of knowledge. At this stage, the possibility of furnishing the reader with a systematic general education had not yet been rejected. In fact, Chambers tried hard to combine the advantages of alphabetical entries with an awareness of the overall unity of knowledge. From a historical perspective, his work can be classed as transitional because it straddled the gap between the age-old encyclopedic tradition, and new demands of the scientific revolution and knowledge explosion that followed. He attempted in fact to allow both a linear and a nonlinear readership.

On the title page of the *Cyclopaedia* there was a significant phrase: 'the whole intended as a Course of Ancient and Modern learning', and in his preface Chambers produced a diagram of what he called his 'View of knowledge'. [23] On this map were shown 47 'Heads', or subject headings, and in the footnotes to this diagram each Head was allotted a list of terms that corresponded to entries in the body of the encyclopedia. They were listed, according to Chambers, in 'the order they are most advantageously read in'. Thus, if the reader wanted to study Physics, he could start by seeing in the diagram how this subject fitted into the View of Knowledge. Then he could successively look up the various terms listed in the footnote and could treat the encyclopedia as a virtual textbook of physics. As Richard Yeo says, 'In this sense his work may have offered one of the last, and heroic, models of how one might travel the circle of arts and sciences without being lost, how one might find knowledge in the midst of an explosion of miscellaneous information'. [24]

The *Encyclopédie*

But the most celebrated example of a radical encyclopedic work from the 18th century was undoubtedly the French *Encyclopédie*, edited by Diderot and d'Alembert. This, like Chambers' book, was alphabetical and contained a diagram of the tree of knowledge, although based on Bacon's formula rather than on Chambers'. The *Encyclopédie* was far larger than Chambers' two volumes, and it greatly expanded the horizons of what counted as common cultural knowl-

22. These copyright issues are discussed in Richard Yeo, 'A Solution to the Multitude of Books: Ephraim Chambers's Cyclopaedia (1728) as "the Best Book in the Universe"', *Journal of the History of Ideas*, Volume 64, Number 1 (January 2003): 69-72.
23. Chambers's 'View of Knowledge' is reproduced by Yeo, 2001, p. 135. It differs significantly from Bacon's account.
24. Yeo, 2003, p. 72.

edge. Hence, it was innovative in at least three ways. Firstly, it was self-analytical; d'Alembert's *Preliminary Discourse* and Diderot's own article titled 'Encyclopedias' addressed the predicament of knowledge and encyclopedic production in the contemporary situation. D'Alembert retained the idea that human knowledge can be pictured as a tree, classifying everything known according to higher and higher levels of generality. He also proposed the image of a world map of knowledge encompassing different regions. The 'philosopher', from his privileged vantage point, surveys the map and gathers together the encyclopedic text in a single coherent order. With this metaphor, d'Alembert entered a centuries old encyclopedic tradition. [25]

However, he also questioned these relatively static images with an awareness that human knowledge is too vast, convoluted, and open-ended to be caught in the encyclopedic net. He admitted that his division of knowledge into topics 'remains of necessity somewhat arbitrary' and in a famous passage compared the universe of knowledge to 'a vast ocean, on the surface of which we perceive a few islands of various sizes, whose connection with the continent is hidden from us'. [26]

A second novel feature of the *Encyclopédie* was its legitimization of new areas of knowledge for entry into the public arena, in particular detailed descriptions of industrial and craft processes. D'Alembert explained that for this it was necessary for the authors to gain hands-on experience of industry:

> Everything impelled us to go directly to the workers. We approached the most capable of them in Paris and in the realm. We took the trouble of going into their shops, of questioning them, of writing at their dictation, of developing their thoughts and of drawing out the terms peculiar to their professions. [27]

By putting such practical knowledge on a par with more conventional and academic subjects, the editors struck a blow against the entrenched class system of the *Ancien régime.* In the pages of the *Encyclopédie* all readers became equal since their particular contributions to society were treated with equal respect.

Yet another radical feature was its communal production. Over 150 writers contributed to the project, ranging widely from aristocrats and government officials to penniless students.[28] Many were authorities in their fields, whether academic, including linguistics, economics, history and architecture, or practical, such as clock-making, bridge-building, or wood engraving. Inevitably, they varied widely in their ability to communicate as well as their expertise, and Diderot himself admitted that many had their weaknesses.

25. D'Alembert, p. 47. For a parallel, see the passage from Vincent de Beauvais quoted above.
26. Ibid, p. 49.
27. Ibid, pp. 122-3. Such information had been suggested by Bacon as suitable for an encyclopedia and the authors of scientific dictionaries had made a start, but the *Encyclopédie* took the project much further.
28. Frank A. Kafker, *The Encyclopedists as Individuals: A Biographical Dictionary of the Authors of the Encyclopédie,* Oxford: The Voltaire Foundation, 1988.

The *Encyclopédie* differed from most other encyclopedias before or since because some of its authors, including the two editors, had political ambitions. They wanted to attack the various inequalities, corruptions, and mismanagements of pre-revolutionary France, including, for instance, the indolence and wealth of the nobility and the higher clergy. They did this indirectly, through irony and innuendo, since a head-on approach might lead to censorship and punishment. [29] Another evasive technique, also used as an attempt to counteract the fragmentary effect of alphabetization, was a system of cross-references, or *renvois,* that directed readers to different articles. One advantage of this arrangement was its use as a path towards radical or subversive knowledge while eluding the censor who only had before him the volume containing the original article. [30]

Encyclopaedia Britannica

The multi-volume encyclopedias of the last two centuries have come a long way from their Enlightenment origins. The most successful of them, the *Encyclopaedia Britannica,* started in Edinburgh as a modest, three-volume edition compiled by one man, William Smellie. It went on to increase enormously in expertise and bulk and was considered by the mid-19th century the foremost British encyclopedia. The *EB* never carried a map or tree of knowledge but combined long treatises on general themes with large numbers of shorter entries (all still in alphabetical order). The editors claimed that these treatises were educational and ensured coherence at the level of the different disciplines, and they criticized rival publications such as Chambers's *Cyclopaedia* for dividing up their information into small fragments while claiming to establish a unified scheme of knowledge. For its third edition (1788-1797), many famous experts were invited to write these treatises, which sometimes approached the cutting edge of contemporary research.

Nevertheless, many since the 18th century have questioned whether it was possible for readers who lacked a secure map of knowledge in their heads to gain real understanding (as opposed to mere information) from a modern encyclopedia. Samuel Taylor Coleridge attacked the presumption of those who had produced the early editions of the *Encyclopaedia Britannica* in alphabetical format. Coleridge himself planned an encyclopedia of the older type, based on a coherent map of knowledge. When eventually published, his *Encyclopaedia Metropolitana* was a commercial failure, but Coleridge did write an extended introductory treatise to it in which he argued that his new encyclopedia would 'present the circle of knowledge in its harmony; will give that unity of design and of elucidation, the want of which we have most deeply felt in other works of a similar kind, where the desired information is divided into innumerable fragments scattered over many volumes, like a mirror broken on the ground, presenting, instead of one, a thousand images, but none entire'. [31]

29. Several of the authors served time in the Bastille due to their contributions.
30. Despite the vigilance of contributors, the *Encyclopédie* was suppressed twice, though reinstated on both occasions.
31. Quoted in Collison, p. 295. Collison reprints Coleridge's entire preface: pp. 243-97.

Throughout its early history, *EB* authors tended to support the established authorities of the day and distanced themselves from the partisan policies of its rival across the Channel. In a dedication to George III, the editor of the *Supplement* of 1801 wrote:

> In conducting to its conclusion the *Encyclopaedia Britannica*, I am conscious only of having been universally influenced by a sincere desire to do Justice to these Principles of Religion, Morality, and Social Order, of which the Maintenance constitutes the Glory of Your Majesty's Reign. [...] The French *Encyclopédie* has been accused, and justly accused, of having disseminated, far and wide, the seeds of Anarchy and Atheism. If the *Encyclopaedia Britannica* shall, in any degree, counteract the tendency of that pestiferous Work, even these two Volumes will not be wholly unworthy of your Majesty's Patronage. [32]

As recently as 1974 there was a surprising attempt by the *EB* to return to the old ways of the classificatory hallucination. Mortimer Adler, a popular educationalist and philosopher, was invited to reorganize the *Encyclopaedia Britannica* in order to provide a systematic, hierarchical organization of all possible knowledge. Adler believed that an encyclopedia ought to be more than a mere 'storehouse of facts'. His *Propaedia* set out a course of study based on ten major categories of knowledge, each with an introductory essay written by an expert in the field. It laid out every major discipline and was a road map for aspiring students. Here again, as with the Enlightenment projects, we see the encyclopedia author aspiring to be philosopher and attempting to gather encyclopedic text into a single, coherent order. In seeking to have both the advantages of alphabetical formats, and the coherence provided by a map of knowledge, this 20th century work echoed the predicament of the encyclopedias of the Enlightenment. This project, however, does not seem to have survived more recent revisions of the encyclopedia.

As a throw-back to earlier times, it is not unreasonable to label the *Encyclopaedia Britannica* and its various competitors conservative publications, in a literary, if not a political sense. They followed the accepted definition of an encyclopedia and what should comprise it, and did not contribute significantly to any self-analytical discourse. Today, a certainty and self-confidence in what constitutes knowledge informs the *EB*, and its magisterial articles reflect an assured and traditional view of the world external to its pages. The impressive bulk of the multi-volume text was until recently a symbol of authority and permanence in the middle-class anglophone household. It is true that today the company maintains a permanent editorial staff who try to keep pace with the rapid growth of knowledge, and that since the 1990s the encyclopedia has been available online and in DVD format, but none of this contradicts the above verdict.

Vannevar Bush

Vannevar Bush was an American engineer and science administrator known for his work on analog computing and his political role in the Manhattan Project that led to the development of the atomic bomb. In 1945, while science adviser to President Roosevelt, he published an

32. Quoted in Yeo: 239-40.

influential article that tried to mobilize the scientific community into developing knowledge tools rather than military hardware. [33] One influential suggestion he made was the idea of a personalized memory machine, christened the *memex.*

Bush was concerned with the rapidly accumulating mass of data confronting scholars and researchers, as well as the increasing difficulties involved in selecting relevant material for particular projects. His goal was therefore to invent a new information system to help users locate, organize, coordinate, and navigate through all information, freeing them from the constraints of rigid systems of classification and data organization. He wrote:

> Our ineptitude in getting at the record is largely caused by the artificiality of systems of indexing. When data of any sort are placed in storage, they are filed alphabetically or numerically and information is found (when it is) by tracing it down from subclass to subclass. It can be in only one place, unless duplicates are used; one has to have rules as to which path will locate it and the rules are cumbersome.

The *memex* was 'a future device for individual use which is a sort of mechanized private file and library'. In it, an individual could store 'all his books, records and communications [...] Most of the contents are purchased on microfilm ready for insertion. Books of all sorts, pictures, current periodicals, newspapers, are thus obtained and dropped into place'. The user could also insert his notes, photographs, etc. In this way the *memex* became a kind of all-purpose encyclopedia housed in a desk.

But the real point of this device was what Bush called 'associative indexing'. The user could select particular items that happened to be relevant to his line of research at the time and link them together into a permanent 'trail' of information. Thereafter, the items on this trail could be instantly recalled or passed on to another user and inserted into his *memex*. 'It is', wrote Bush, 'exactly as though the physical items had been gathered together from widely separated sources and bound together to form a new book. It is more than this, for any item can be joined into numerous trails'. Trails did not need not be created only by those using them, but rather there would be 'a new profession of trail blazers, those who find delight in the task of establishing useful trails through the enormous mass of the common record'.

Bush's vision recalls the commonplace books in which generations of scholars from the Renaissance onwards and probably earlier recorded information they wished to remember. According to the definition by Ephraim Chambers, a commonplace book was 'a Register, or orderly Collection of what things occur worthy to be noted, and retain'd in the Course of a Man's reading, or Study'. [34] Chambers, in fact, claimed that his *Cyclopaedia* was a ready-made commonplace book.

33. Vannevar Bush, 'As We May Think', *Atlantic Monthly*, July 1945. Subsequent quotations by Bush are from this article.
34. Quoted by Yeo: 110. Yeo goes on to describe John Locke's views on to how to organize one's commonplace book.

Ted Nelson wrote 20 years later of a technology that would enable users to publish and access information in a nonlinear format.[35] He called this format 'hypertext', a 'non-sequential assembly of ideas' where the ultimate goal was 'the global accumulation of knowledge'.[36] With hypertext, users of knowledge tools would no longer be constrained to read in any particular order but could follow links in and out of documents at random; navigating via hypertext is open-ended, the path determined by the needs and interests of the reader. Nelson's vision was implemented by Tim Berners-Lee, designer of the World Wide Web. Berners-Lee understood that creativity consisted in linking items together. He wrote, 'In an extreme view, the world can be seen as only connections, nothing else [...] I liked the idea that a piece of information is really defined only by what it's related to, and how its related'.[37] He envisioned an information space in which anything could be linked to anything – a web of information.

The *memex* and the hyperlink structure of the web play a role in determining both the framework within which information is presented and the extent to which knowledge becomes possible. These 20th-century new media systems aim, at least in part, to enhance the user's navigation and understanding of knowledge. They free the reader from the straitjacket of fixed and hierarchical systems of information organization, allowing open-ended and nondetermined navigation. Through these tools, users can organize relevant information following their own intuitive means, based not on imposed structures or alphabetization but on their own habits of thinking – following leads, making connections, building trails of thought.

Wikipedia

While describing the benefits of the *memex*, Bush wrote: 'Wholly new forms of encyclopaedias will appear, ready made with a mesh of associative trails running through them, ready to be dropped into the memex and there amplified'. Is Wikipedia a 'wholly new form'? Of course it is. To start with, its digital nature means it is quite different from all pre-internet projects. Take, for example, English Wikipedia's over 60 million hyperlinks, scattered among its three million articles. These links tend to ensure that any reader who browses for long gets to steer a pathway that few other readers will also traverse. As readers move through a web or network of texts, they continually shift the center – and hence the focus or organizing principle – of their investigation. One early analyst of the internet, George Landow, claims, in somewhat apocalyptic terms, that this constitutes nothing less than a cultural revolution. He writes,

> We must abandon conceptual systems founded on ideas of centre, margin, hierarchy, and linearity, and replace them by ones of multilinearity, nodes, links and networks [...] This paradigm shift marks a revolution in human thought. Electronic writing [is] a direct response to the strengths and weaknesses of the printed book, which itself was one of the major landmarks in the history of human thought.[38]

35. T. Nelson, 'The Hypertext', *Proceedings of the World Documentation Federation Conference*, 1965.
36. Quoted in Foster Stockwell, *A History of Information Storage and Retrieval*, Jefferson, NC: McFarland, 2000, p. 168.
37. Tim Berners-Lee, *Weaving the Web*, London: Texere, 2000, p. 14.
38. George P. Landow, *Hypertext 3.0*, Baltimore: The Johns Hopkins Press, 2006, p. 1.

Wikipedia has also inherited many of the more radical and innovative ideas of Enlightenment projects. Like the *Encyclopédie,* it is highly discursive, analyzing its own take on what constitutes relevant content and how to include it. As did both Chambers and Diderot, it too has greatly widened the definition of what is suitable knowledge to include in an encyclopedia.[39] And like the *Encyclopédie* again, but to a far greater extent, its production involves a wide community of authors rather than one, or a small handful, of professional editors. The wiki software, which allows anyone to contribute, makes it unique, even among other internet encyclopedias. And unlike any previous encyclopedia in history, it is free not only to edit, but also to use. Above all, Wikipedia is radical because its procedures show the way to a new concept of knowledge. In today's world, knowledge should be flexible, fallible, refutable, and its quest should involve change, disagreement, and continuous partial revision. Unanimity might be fitting for a rigid church or for proponents of a grand narrative, but variety of opinion is a necessary precondition for real insights to emerge. And a method that takes account of variety is the only method compatible with a democratic and humanitarian outlook. All this is implicit in Wikipedia's numerous rules and conventions.

Nevertheless, in spite of all these features, Wikipedia is in some ways deeply conservative. This project has inherited from its multi-volume, pre-digital forebears a clear idea of what an encyclopedia ought to be. It is a vision of a cautious, objective, yet omniscient witness-bearer to the real world. True, the history and discussion pages of Wikipedia tell a different story of varied and conflicting contributions that comprise part of the project's radical side. Unfortunately, few readers investigate these pages; the vast majority are concerned only with the article pages. The article page is comparable to historical writing: history is a discourse about the past and can be deconstructed or challenged as much as any other discourse. There is no hard and fast link between the actual past and any particular version of it produced by an individual historian. History is fluid, dependent on its author's perceptions. As Croce put it, all history actually reflects the contemporary. Again, history usually involves narrative, the stringing together of facts like beads on a necklace, though the historian also tries to establish connections between the beads, whether causal, temporal, or otherwise. Yet any narrative can be challenged, as different facts are selected or linked together in different combinations. History is, in fact, an arena of conflicting narratives. At the conclusion of his account of the origins of 'modernism', Gabriel Josipovici reflects on this point:

> Naturally I think the story I have just finished telling is the true one. At the same time I recognise that there are many stories and that there is no such thing as *the* true story, only more or less plausible explanations, stories that take more or less account of the facts. I am aware too that these stories are *sites of contestation*; more is at stake than how we view the past. That is what is wrong with positivist accounts of Modernism, which purport simply to 'tell the story'... These make a show of impartiality but are of course just as partial as any other account.[40]

39. See the arguments about deletionism and inclusionism in *Wikipedia*: for example at http://en.wikipedia.org/wiki/Deletionists.
40. Gabriel Josipovici, *What Ever Happened To Modernism?* New Haven and London: Yale University Press, 2010, p.178.

Wikipedia, of course, makes much of its 'show of impartiality'. Its guiding principle of Neutral Point of View, especially when combined with majority decision-making, hardly does justice to the view of history just described. These principles frequently lead to one-dimensional accounts from which the challenges of alternative narratives have been softened or excluded. In effect, dissident would-be editors are told, 'you have made your point during our discussions; now please be quiet and conform to the will of the majority'. In a well-known article, the historian Roy Rosenzweig wrote that Wikipedia articles should never summarize disagreements by the formula, 'some say this; some say that'. Instead they should be precise: 'Professors A and B say this, while authors X and Y say that'. [41] I would contend that this is equally frustrating for the reader, who would prefer to hear authentic opinions instead of bland summaries. How much more interesting, and more truthful, to allow these contrasting voices to be heard rather than be muffled by compromise. Why not 'Be bold' and give public space to the social, cultural, and ideological forces that are continually trying to modify or reinterpret the archive and that at present are corralled into marginal areas of the encyclopedia? Why not, as Vannevar Bush once suggested, trust users to make their own 'trails' through the mass of variegated and conflicting data available?

Wikipedia is radical as a digital wiki that inherited progressive aspects from the age of Enlightenment and beyond. However, it also draws from conservative features, especially from more recent times – times when central authority spoke and the rest of us listened. In contrast to a world of increasing homogeneity in which difference is subsumed under the rule of dominant opinion and standardized knowledge, Wikipedia has the potential to proliferate voices and dissent – and yet the increasingly bureaucratic 'policing' of its content, as for example with NPOV, means it is in danger of merely mirroring the typical knowledge economies of the West. It is undoubtedly also true that many potential Wikipedians who would like to express their particular point of view more freely and accurately are deterred by their awareness that such contributions will not survive the NPOV test and will be speedily censored. [42]

The illusion of a totalizing drive for universal knowledge – a project that is manifestly impossible to achieve, even with the most advanced technology and the enthusiastic cooperation of thousands – is also quite inappropriate in the emergent postmodern, skeptical, and multicultural world of today. Indeed, knowledge cannot be exhaustively collected and stored in this manner but is always tied to the local time and situation in which it was developed and deployed, constantly in a state of flux.

This survey of our encyclopedic past ends with a call to the future. Wikipedia is an amazing and unique achievement and a fitting climax to this historical account. However, it could be

41. Roy Rosenzweig, 'Can History Be Open Source?', *The Journal of American History* (2006) 93 (1): 117-146.
42. This point is made by Nathaniel Tkacz in his discussion of Foucault's 'disciplinary society' in which someone who is subject to a 'field of visibility' internalizes a disciplinary role and thus 'becomes the principle of his own subjection': Nathaniel Tkacz, 'Power, Visibility, Wikipedia', *Southern Review* 40.2 (2007): 5-19.

improved in keeping with the times. Is it impossible to envisage a different kind of encyclopedia, a multivocal version that does justice to our world – and to those who author, as opposed to those who authorize, our knowledge of it?

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A BRIEF HISTORY OF THE INTERNET FROM THE 15TH TO THE 18TH CENTURY

LAWRENCE LIANG [1]

In his preface to *Labyrinths*, Andre Maurois quotes Borges's wonderment when reading a striking piece of fiction or a philosophical proposition: 'If this absurd postulate were developed to its extreme logical consequences, what world would be created?'. [2]

Is it not the case that so many of our taxonomical labors of love rest on this precise absurdity? Simon Winchester in his history of the *Oxford English Dictionary* narrates the stories of countless individuals around the world who tirelessly contributed to the dictionary. Mirroring how the internet, and especially Wikipedia, works, Winchester chronicles the contributions of thousands who received no compensation and very little recognition, yet whose collective efforts created incredible value.

Winchester's *The Professor and the Madman* includes the story of one of the OED's particularly prolific contributors, Dr. W. C. Minor. When James Murray, one of the editors of the dictionary, recognized Minor's efforts and tracked him down, he discovered that Minor was a retired army surgeon, living and writing from an asylum. In 1872 Minor fatally shot dead a man whom he believed had broken into his room. Minor was found not guilty by reason of insanity and incarcerated in the Broadmoor Criminal Asylum. He spent his army pension on books and heard about a call for contributions for the OED project. He devoted most of the remainder of his life to that work and became one of its most effective volunteers, reading through his personal library and compiling quotations that illustrated the way particular words were used. [3]

We live in a world, designed in part by Borges and realized in part by people like Minor, where the relationship between systems of knowledge that seek to stabilize our understanding of the world also merge with systems that destabilize our known systems of classifications. Like Borges's stories, projects such as Wikipedia do not merely describe a 'the world out there', but are themselves full of strange worlds operating on very different principles. In the short story 'The Analytical Language of John Wilkins', Borges describes the conceptual realm of the encyclopedia that threatens to overrun the real world. For inhabitants of cyberspace, often lost in a morass of information, with Google as our compass and Wikipedia as our familiar, comforting north star, it can be difficult to distinguish fact from fiction. Certainty and authority,

1. This paper was initially presented in the Wikimania conference at Taipei 2007, and I would like to acknowledge the lively discussion after the presentation, which helped me sharpen some of the arguments.
2. Jorges Luis Borges, *Labyrinths*, New York: New Directions Publishing, 2007, p. 9.
3. Simon Winchester, *The Professor and the Madman: A Tale of Murder, Insanity, and the Making of the Oxford English Dictionary*, London: Harper, 2005.

the children of modernity, still claim a massive grip over our lives, but every once in a while we are privy to delightful instances of disorientation, such as the 2007 controversy and confusion over fake, leaked online versions of *Harry Potter and the Deathly Hallows*. These moments often bridge print and digital formats and cause exhilaration or anxiety in turn for those still living under the sign of authoritative knowledge.

The massive growth of Wikipedia as a collaborative encyclopedia editable by anyone particularly raises a number of such concerns, ranging from teachers who feel that it has become far easier for their students to do assignments via the helpful tool of copy and paste, to scholars and academics worried about the accuracy and reliability of the information available on Wikipedia, or to users who have doubts about the authority of knowledge in a collaborative encyclopedia. [4] This article seeks to address the debate on the authority of knowledge vis-à-vis Wikipedia through a slightly different lens. Rather than addressing concerns over the authority of knowledge brought about by the emergence of 'new media', I would instead like to locate it through a historical examination of 'old media'. I will look at the early history of the book and the print revolution to argue that the authority of knowledge presumed for the book is not inherent in it. In fact, the early history of the book is filled with conflicts over the book as such. By examining the conditions that enabled the establishment of the book as a stable artifact of knowledge, I hope to return to a different way of thinking about Wikipedia and debates on its authority.

Wikipedia and the Question of Authority

Cyberspace can be roughly divided into two camps: those who swear by Wikipedia and those who swear at it. These divisions have arisen mainly because of differences of opinion on the trustworthiness of Wikipedia. Critics argue that the task of creating an encyclopedia should be left to experts and that Wikipedia is nothing more than a collection of articles written by amateurs, which at its best can be informative, and at its worst, dangerous. The most commonly invoked comparison is the sacred cow of knowledge, the *Encyclopaedia Britannica*. While the *Encyclopaedia Britannica* has developed over centuries with various expert contributions, the critics claim Wikipedia is a new kid on the knowledge block and should be shunned.

Some of the more infamous examples cited by detractors include the controversy over a hoax biography of John Seigenthaler Sr., a well-known writer and journalist. An anonymous editor had created a new Wikipedia article for Seigenthaler that included false and defamatory content, including the allegation that he had been involved in the assassination of John F. Kennedy. The post was not discovered and corrected until over four months later, and it raised questions about the reliability of Wikipedia and other online sites that lack the accountability of traditional news sites. After the incident, Wikipedia took steps to prevent a recurrence, including barring unregistered users from creating new pages.

On the other hand, *Nature* published a study claiming that the Wikipedia was as accurate as the *Encyclopaedia Britannica*, or rather that the Wikipedia contained as many errors as the

4. Couze Venn, 'A Note on Knowledge', *Theory, Culture & Society* vol. 23 no. 2–3 (May 2006): 192.

Britannica.[5] Wikipedians themselves also respond passionately to accusations that the site is not reliable or trustworthy. Their retorts range from questioning the credibility of *Britannica's* accusations (since its monopoly over encyclopedias is threatened by Wikipedia) to taking steps to improve Wikipedia's reliability and championing the ability to correct mistakes or adapt articles in ways that printed encyclopedias cannot.

Predictably, the debate on the authority of knowledge takes place in a rather serious tone, whether through *Encyclopaedia Britannica*'s zealous claims of monopoly over authority or with the passionate defenses of Wikipedians. What remains constant through the entire process, however, is the unchallenged idea of the authority of knowledge itself. I would like to take a slightly different track and rethink the question of the authority of knowledge by revisiting the history of the book and of early print culture to ask how the idea of authority itself emerges.

The authority of knowledge is often spoken of in a value-neutral and ahistorical manner. It would therefore be useful to situate authority in history, where it is not seen to be an *inherent* quality but a *transitive* one[6] located in specific technological changes. For instance, there is often an unstated assumption about the stability of the book as an object of knowledge, but the technology of print originally raised a host of questions about authority. In the same way, the domain of digital collaborative knowledge production raises a set of questions and concerns today, such as the difference between the expert and the amateur, as well as between forms of production: digital versus paper and collaborative versus singular author modes of knowledge production. Can we impose the same questions that emerged over the centuries in the case of print to a technology that is barely ten years old?

In many ways this debate is similar to the older debate in philosophy between ethics and morality. Critics such as Nietzsche demonstrated that the idea of morality often stemmed from very particular experiences rooted in the history of Christianity that were then narrated as universal experiences; though, as Nietzsche noted, to do away with morality is not to have done with the question of ethics. In a similar vein, by posing the question of authority of knowledge in absolute terms, we tend to flatten many distinguishing factors that actually exist, along with the temporal framework of the debate. We tend to forget that the domain of collaborative online knowledge production is a relatively young field. While the internet may have collapsed temporality, we need to forfeit the conceit that we have arrived at the end of history.

5. For the report, see Jim Giles, 'Internet Encyclopedias Go Head to Head', *Nature* 438 (2005): 900-901, http://www.nature.com/nature/journal/v438/n7070/full/438900a.html. For a response by *Britannica* to the study, see *Encyclopaedia Britannica*, Inc, 'Fatally Flawed: Refuting the recent study on encyclopedic accuracy by the journal *Nature*', March 2006, http://corporate.britannica.com/britannica_nature_response.pdf; and for a response by *Nature* to *Britannica* see, 'Editorial: *Britannica* attacks...and we respond', *Nature* 440, 582 (30 March 2006), doi:10.1038/440582b, http://www.nature.com/nature/journal/v440/n7084/full/440582b.html.
6. I take this phrase from Adrian John's comprehensive account of early print culture. See Adrian Johns, *The Nature of the Book: Print and Knowledge in the Making*, Chicago: Univ. of Chicago Press, 1998.

It may be more useful to think of the contemporary moment as an extremely fluid and ambiguous period marked by immense possibilities, comparable to another time in history equally marked by fluidity. It is my contention that conflicts over the authority of knowledge during the early history of print culture, or 'print in the making', demonstrate that this debate is not unique to Wikipedia or the internet. An examination of the conditions under which authority came to be established may help us get over our anxieties and better understand our situation with a certain lightness. I rely on the incredible work done by scholars such as Elizabeth Eisenstein, Hillel Schwartz, Adrian Johns, and Chaucer scholars to reconstruct the story of print and to demonstrate the immense apparatus required for creating authority.[7]

Pre-Print History or the Internet of the 15th Century

There is a self-assuredness in the claim that the book makes upon the domain of knowledge today. Most of us for instance know what a book is and can recognize its attributes, and though we may disagree with specific books, there is no disagreement about it as a stable artifact of knowledge, per se.

However, it was not always the case that books were considered naturally reliable sources of authority. According to Adrian Johns, who has written one of most comprehensive histories of the book, 'It was regarded as unusual for a book professing knowledge from lowly almanacs to costly folios to be published in relatively unproblematic manner that we now assume'.[8] In his important study on the various contests and battles over the emergence of the book as a stable knowledge source, we get a glimpse into the historical contours of the debate. It is therefore important to situate the history of print technology and the ways that it changed knowledge production and dissemination, because it was, in many ways, another 'information revolution' similar to the contemporary moment of the internet.

For us to understand the idea of *print in the making,* we first need to look at some of the practices that preceded the idea of print. They enable us to understand the specific nature of the disputes around the authority of knowledge and, more importantly, rethink these disputes as productive debate. We are by now familiar with some aspects of the shift from scribal to print cultures. Reproduction of texts and cultural objects existed both in the world of the Dar al-Islam and of Christendom in the West, where medieval monks and notaries toiled away copying books, legal documents, and contracts. In particular, the medieval notary played a crucial role in the socio-legal relations of the emerging absolutist state. Hillel Schwartz for instance says:

> Stenography transforms the spoken word into the written. Copying transforms the One into the Many. Notarising transforms the private into the public, the transient into the timely, then into the timeless. [...] The notary was a symbol of fixity in a world of flux, yet

7. See Elizabeth Eisenstein, *The Printing Press as an Agent of Change: Communications and Cultural Transformations in early Modern Europe*, Cambridge: CUP, 1980; Robert Darnton, *The Kiss of Lamourette: Reflections in Cultural History*, New York: W. W. Norton, 1990; and Johns.
8. Johns, p. 30.

> the making of copies is essentially transformative – if not as the result of generations of inadvertent errors, then as a result of masses of copies whose very copiousness affects the meaning and ambit of action. [9]

The pre-print period and the reproduction of manuscripts are usually characterized as incredibly unreliable. This absence of certainty was attributed to the mistakes made by scribes who had to copy by hand over many hours; there was no foolproof method of ensuring the accuracy of their methods. There were also debates on the trustworthiness of many copies, all of which differed from each other. As Borges describes in his story 'The Lottery in Babylon',

> Under the beneficent influence of the Company, our customs are saturated with chance [...] the scribe who writes a contract almost never fails tointroduce some erroneous information. I myself, in this hasty declaration, have falsified some splendor, some atrocity. Perhaps, also, some mysterious monotony. [...] Our historians, who are the most penetrating on the globe, have invented a method to correct chance. It is well known that the operations of this method are (in general) reliable, although, naturally, they are not divulged without some portion of deceit. Furthermore, there is nothing so contaminated with fiction as the history of the Company. [10]

According to Mark Rose, in the Middle Ages the owner of a manuscript possessed the right to grant permission to copy it. This right could be exploited, for example, by monasteries that regularly charged a fee for permission to copy their books. This was somewhat similar to copyright royalty, with the crucial difference that the book owner's property was not the abstract text as such, but the manuscript as a physical object made of ink and parchment. [11]

The value provided by the monastery and the reason it could charge a copy fee was not for the existence of the manuscript alone, but also because each monastery's copy had unique elements in the form of annotations, commentary, and corrections. The only existing copy of *The Book of Margery Kempe*, for instance, is brilliantly reshaped and contextualized by the annotations of the monks from Mount Grace.

So while the popular account of pre-print cultures is of slavish copying by scribes, the story turns out to be more complicated. Acting as annotators, compilers, and correctors, medieval book owners and scribes actively shaped the texts they read. For instance, they might choose to leave out some of *The Canterbury Tales* or contribute one of their own. They might correct Chaucer's versification every now and then. They might produce whole new drafts of the *Tales* by combining one or more of Chaucer's published versions. While this activity of average or amateur readers differs in scale and quality from Chaucer's work, it opens us to new questions about the relationship between author, text, and reader in the Middle Ages and of how to understand contemporary practices of knowledge and cultural creation.

9. Hillel Schwartz, *Culture of the Copy*, Cambridge: MIT Press, 1996 pp. 214-215.
10. Borges, p. 35.
11. Mark Rose, *Authors and Owners*, Cambridge: Harvard Univ. Press, 1995.

Chaucer and the Various Editors of *The Canterbury Tales*

Scribes and readers responded to Langland and other authors not by slavishly copying, canonizing, or passively receiving their texts, but by reworking them as creative readers. In doing so, they contribute great layers of intertextual conversation that made the work of these now canonical authors relevant, interesting, and, crucially, in circulation. [12] An especially interesting example of this is Chaucer, the father of English poetry. While the canonical Chaucer is the one we have now learned to recognize, scholars argue that the evidence available from the period of *The Canterbury Tales* suggests a far more fluid and playful relationship between author, text, and reader. [13] The structure and form of *The Canterbury Tales* interestingly reflects on the question of knowledge production in general, as well as on its own conditions of production. Rebecca L. Schoff, in her remarkable history on forms of reading and writing in medieval England, argues that:

> Manuscript culture encouraged readers to edit or adapt freely any text they wrote out, or to re-shape the texts they read with annotations that would take the same form as the scribe's initial work on the manuscript. The assumption that texts are mutable and available for adaptation by anyone is the basis, not only for this quotidian functioning of the average reader, but also for the composition of the great canonical works of the period. [14]

Sounds very much like Wikipedia.

In the disclaimer before the Miller's Tale for instance, Chaucer states that he is merely repeating tales told by others, and the *Tales* are designed to be the written record of a lively exchange of stories between multiple tellers, each with different, sometimes opposing, intents. Interestingly, Chaucer seems not only to recognize the importance of retelling stories, but also of a mode of reading that incorporates the ability to edit and write. This invitation was accepted by late medieval readers who took great pleasure in creating copies of the *Tales* that drastically cut, expanded, edited, and otherwise modified Chaucer's work. This activity goes beyond the mechanics of scribal copying.

One of the most remarkable editions to excite historians in recent times was a manuscript copied by a professional scribe for Jean of Angouleme. This version was created during Jean's captivity in England for 33 years. Jean and his scribe began work on an extraordinary edition of the *Tales* that records in several places what we assume were Jean's reactions to them. It is difficult to imagine a reader much closer to the text's content, but even more impressive is the evidence of Jean's investment in its form. Jean probably spent years gathering exemplars from multiple sources. Once the text was copied by his scribe, Jean made roughly 300 corrections to the text while consulting yet another manuscript. Scholars

12. This segment relies on Rebecca Schoff's incredible study of reading and writing in medieval England. See Rebecca Lynn Schoff, *Freedom from the Press: Reading and Writing in Medieval England*, PhD dissertation submitted to Harvard University, May 2004.
13. Ibid.
14. Ibid.

of Chaucer agree that 'his purpose was to clarify the meaning, to improve the meter, and to give readings from a better manuscript'. [15]

We should imagine that books for late medieval readers were not just containers for texts. In extreme cases, they were projects – the physical byproducts of active and often collaborative reading. Schoff argues that the slow expansion of English printing relative to the explosion of literary manuscript production in the 15th century might partly be due to the fact that the press offered a vastly different reading experience to the public, one that must have appeared impoverished and passive to those who viewed reading as an active form of artistic production. The feeling of a loss of opportunity with the rise of English printing was at least equally shared among poets and readers.

By modifying, excerpting, and adding to the *Tales*, 15th-century readers responded in kind to the poetics of reading and composing within which the *Tales* themselves work. The poetics of the tales and the circulation of the manuscripts reveal a continuity of a tradition of open invitation to readaptation and an acknowledgement of the centrality of readers in literary production.

The emergence of print technology, in contrast, construed the copies that bore marginal marks, traces of editing, and changes made by readers as defective copies filled with mistakes and marked by the classical characteristics that seemed to signal to the crisis of authority. Yet the lack of attributions, the mangled texts, the notes in the margins, were not simply mistakes, but evidence of an interactive reception of the tales, something fueled by the active choices of the readers who wrote, and in some cases, composed the texts.

Print Cultures and The Fluidity of Knowledge

The sheer volume of the print revolution was incredible. Between 1450 and 1500, more books had been printed than the previous 500 years (100,000 manuscripts in Europe in 1450 exploded to 20,000,000 books by 1500.). [16] Historian Elizabeth Eisenstein suggests that with the coming of the print revolution, a 'typographical fixity' was imposed on the word. However, Eisenstein's assertion may have been too categorical and hasty in recognizing fixity as an automatic result of the print revolution. In fact, printed books during the first 100 years of print culture were rife with errors; papal edicts against 'faulty bibles' were issued, forgeries were rampant, and manuscripts were pirated or counterfeited. [17]

It is this open-ended nature of print in the making that I am interested in, as print in fact opened up the floodgates of diversity and conflict and at the same time raised difficult questions about authoritative knowledge. Far from ensuring fixity, early printing was marked by uncertainty, and the constant refrain for a long time was that you could not rely on the book. French scholar Adrien Baillet warned in 1685 that 'the multitude of books

15. Ibid.
16. Elizabeth Eisenstein, *The Printing Press as an Agent of Change: Communications and Cultural Transformations in early Modern Europe*, Cambridge: Cambridge Univ. Press, 1980.
17. Schwartz p. 215.

which grows every day [would cast Europe into] a state as barbarous as that of the centuries that followed the fall of the Roman Empire'. [18]

One area of immense conflict was the publication of the Bible. Because the Bible was one of the most reproduced texts in Europe's scribal culture, the move from the scribe to printing press was certainly not welcomed by all. In the 17th century, a papal bill was even issued against publishers, excommunicating them for mistakes made in the printing of the Vulgate Bible authorized by Sextus V; all copies of the first edition that were printed had to be confiscated and destroyed.

A priest, Johannes Trithemius, criticized print culture in defense of the scribes:

> It is the scribes who lend power to words and forge a lasting value to passing things and vitality to the flow of time. Without them, the church and its faith would be weakened, love grown cold, hope confounded, justice lost, the law confused and the gospel fallen into oblivion. The printed book is made of paper and like paper will disappear, but the scribe working with parchment ensures lasting remembrances for himself and his text. [19]

There were a number of similar controversies in the world of the natural sciences, with people struggling to figure out a systematic way of differentiating useful from useless information. One result of this debate was the formation of a discriminating reading group in England that went on to become the Royal Society of London to which unknown authors such as Isaac Newton and Robert Boyle submitted papers. (Newton's *Principia* would eventually become the most famous volume to emerge from this society.) Thus at stake was not only books and their veracity, but the very question of knowledge itself.

Histories of the transition from manuscript to print commonly argue that these technologies settled into a 'peaceful coexistence' in which each offered a different mode of transmission. Printed copies were supposedly 'accurate, useful texts for scholars', while manuscripts were 'distinct and personal'. But there is now evidence that this was not such a simple process, and the existence of original 'manuscript' copies, which have even copied the colophon of print copies, suggests that the traffic between printed and written texts was far more fluid. While it is true that printing allowed for accurate reproduction, the flexibility of both technologies was made to respond to different kinds of reading and writing practices in those early days. [20]

Technically, it was possible for writers to have their works copied verbatim, but the manual task of copying often led to mistakes or to creative appropriations. And, technically, readers could still amend a printed book as if it were a manuscript, but they were less likely to do so. This lead to the establishment of norms of print culture and of a new kind of professional editor whose public presence became possible by the production of identical copies of their editions.

18. Adrian Baillet, *Jugements des Savants*. Paris, 1685, quoted in ibid.
19. Johannes Trithenius, *De Laude Scriptorum*, In Praise of Scribes, 1492, Exact quote available at http://everything2.com/title/Johannes+Trithemius.
20. Ibid.

The history of print technology should therefore be seen print as a history of struggles over the idea of authority of knowledge. The emergence of the authority of knowledge is often narrated in a teleological fashion that assumes that print did away with the crisis of reliability. It is worth bearing in mind the fact that it also did away with a range of knowledge practices existing in pre-print cultures, some of which have been resurrected in contemporary digital practices. Since the technology of knowledge production in the pre-print era was built on a very material and interactive process (copying by hand, which also relied on the labor of the eye and the mind), it enabled a participatory reading and writing that was simultaneously suspicious of any source of authority. So rather than speaking about authority as something that is intrinsic to either a particular mode of the knowledge production or intrinsic to any technological form, it might be more useful instead to consider the variety of knowledge apparatuses that establish its authority.

The Knowledge Apparatus

A knowledge apparatus is both the product for one complex set of social and technological processes, as well as the starting point for another. In the case for the history of the book, it was clear that the authority of knowledge depended on the arrangements, classifications, and kinds of assemblage that make it possible, maintain it, and critique it. The conventions, for instance, by which the title and author of a work are identified play very specific functions in preparing knowledge, along with other kinds of documentation, attribution, citation and copyright.

Accordingly, the history of a knowledge apparatus from any era includes instances of false attribution, misquotation, plagiarism of many kinds, and spurious appeals to authority. Nevertheless, without the apparatus, which constitutes the means by which ideas evolve, mutate, and are passed on, there would never be knowledge. Knowledge might thus be regarded as simultaneously made possible and problematized at the level of the apparatus. The preconditions for knowledge cannot easily be made the object of knowledge. It is a matter of making evident (making known) the structures of knowledge itself, which emerge in ways that provide definitive proof of the imperfectability of knowledge. To speak of the productive nature of conflicts over knowledge is then to recognize that any knowledge apparatus always remains open to permanent revision.

The question thus centers on how we use the knowledge apparatus, bring it to light, and mobilize it today. We cannot effectively problematize knowledge without making use of its apparatus. Yet the authority of knowledge debate takes place with an almost theological devotion to an idea of knowledge, without considering its apparatus. There is the tendency to view technology as somehow neutral, as if the shift from the pen to the typewriter to the personal computer has no impact on the process of writing and self-formation. This is all the more true when one examines one of the most gigantic efforts of documenting knowledge: the encyclopedia.

The Encyclopedia Project

> The certitude that some shelf in some hexagon held precious books and that these precious books were inaccessible, seemed almost intolerable. A blasphemous sect suggested that the searches should cease and that all men should juggle letters and symbols until they constructed, by an improbable gift of chance, these canonical books [...] [I]n my childhood I have seen old men who, for long periods of time, would hide in the latrines with some metal disks in a forbidden dice cup and feebly mimic the divine disorder. [21]

The project of encyclopedias, which aims in many ways to be the definitive knowledge apparatus, will always be fraught with conflicts and contestations. With ideas of classification and linking lying at its heart, it constitutes the ultimate challenge of the knowledge apparatus. While we are now familiar with the encyclopedic form, historian Cheryl Gunness shows that it was not always taken for granted. [22]

Gunness argues that the form that encyclopedias and books took in the 18th century was very closely tied to technologies of bookmaking. The novel and the encyclopedia emerged around reading practices that were constantly shifting, and many 18th century encyclopedias were not designed to be consulted for isolated facts, but instead to be read from cover to cover as coherent narratives. Gunness also remarks on the contradictory impulse that marked the production of encyclopedias in the 18th century. On the one hand, the ostensible purpose of encyclopedias was the open dissemination of knowledge, yet at the same time their various compilers paradoxically assert that their encyclopedias are ordered according to secret principles that require their readers to develop reading practices to unlock these secrets.

She argues that the production of the encyclopedia was also shrouded in secrecy: secret publishing, censorship, and authorship of articles. There was secrecy even within the articles. As an example of this she cites the fascinating story of Diderot's troubles with his *Encyclopédie*. Diderot imagined his *Encyclopédie* as a response to a period of intellectual ferment. The role of the encyclopedia was to catalogue and classify new scientific terms, provide a forum for unorthodox or challenging theories, and serve as a reference manual or handbook of modernity. His attempt to create a sort of 'counter-academy' that would provide a resource for generations to come ran up against the problem of time and coping with the explosion of new knowledge.

The first two volumes, which came out in July 1751-52, were suppressed by order of the Council of State, partly because the author of the article 'Certitude' had been condemned by the church and also because the Jesuits claimed that the encyclopedia plagiarized an earlier encyclopedia of theirs. The matter went to the courts, which overruled the church, and the encyclopedists were allowed to continue their work unharrassed till the publication of the seventh volume in 1757.

21. Borges, p. 61.
22. Cheryl Beth Gunness, *Circles of Learning: Encyclopedias and Novels in 18th Century Britain*, PhD dissertation submitted to University of Ohio, 2001. See in particular Chapter 1, The Secret History of 18th Century Encyclopedias.

In 1759 Pope Clement the 13th condemned the encyclopedia, and in January 1759 the parliament condemned it as well, ordering the project to stop. Afterwards Diderot worked in secret to complete the encyclopedia. Then, in 1764, when the great work was nearly completed and Diderot was at his most enthusiastic and optimistic, he discovered that his editor Le Breton had been secretly censoring him for at least two years. He decided to abandon the effort, unable to ascertain the extent to which his work had been mutilated. Eventually, however, Diderot completed the work with a false Swiss imprint.

Encyclopedias as Threshold of Knowledge and Authority Debate

As we have seen in our exploration of the knowledge apparatus, the question of the authority of knowledge often masks the conditions by which authority becomes an issue or gets resolved. And in the case of encyclopedias, where the entire aim of the project is to devise a system of classification, every new encyclopedia is both a response to, as well as an intervention in, the question of how we know. And while classification is at the heart of this enterprise of ordering, every classification system is haunted by its exclusions, separations, and forced hierarchies, as well as its conversion of fluid emergent processes and events into stable categories.

This perhaps explains why the most heated debates on knowledge and authority take place as encyclopedic interventions. After all, what better way is there to show the absurdity and contingency of our world order than to provide alternative classifications? One of the oft-cited examples of this arbitrariness is Borges's discussion of 'a Chinese encyclopedia' entitled the 'Celestial Empire of Benevolent Knowledge', in which it is written that:

> Animals are divided into:
>
> (a) belonging to the Emperor,
> (b) embalmed,
> (c) tame,
> (d) sucking pigs,
> (e) sirens,
> (f) fabulous,
> (g) stray dogs,
> (h) included in the present classification,
> (i) frenzied,
> (j) innumerable,
> (k) drawn with a very fine camelhair brush,
> (l) et cetera,
> (m) having just broken the water pitcher,
> (n) that from a long way off look like flies. [23]

This brilliant compilation became the inspiration for Foucault to write *The Order of Things*, a treatise on the conditions under which domains of knowledge come into being, as well as

23. Jorge Luis Borges, 'The Analytical Language of John Wilkins', *Other Inquisitions* (1937-1952), trans. Ruth L. C. Simms, Austin: University of Texas Press, 1984, p. 103.

an exploration of their classificatory logic and their enumerative reasoning. Foucault, marveling at Borges's assorted collection, wonders what it is about this compilation that borders on the impossible, given that it can be arranged in terms of an internal logic; for instance, a subclassification based on real / unreal animals. But he states that surely this subclassification cannot be the basis of the fantastical, since in any case the unreal are represented as unreal. He says:

> It is not the 'fabulous' animals that are impossible, since they are designated as such, but the narrowness of the distance separating them from (and juxtaposing them to) the stray dogs, or the animals that from a long way off look like flies. What transgresses the boundaries of all imagination, of all possible thought, is simply that alphabetical series (a, b, c, d) which links each of those categories to all the others. [24]

The role of encyclopedias is not just to provide greater stability and authority to our worlds, as their roots in the Enlightenment would have us believe, but equally to destabilize our world by suggesting new modes of classification, new methods of compilation, and new authorities of knowledge. Borges understood better than most other writers the strangely seductive world of encyclopedias, and his fiction constantly plays with the simultaneous existence of certainty and uncertainty, infinite knowledge, and our fragile illusions of overcoming uncertainty. [25] In his discussion of a fictional encyclopedia in 'Tlön, Uqbar, Orbis Tertius', Borges opens us to the challenge of 'thinking the world' through improbable sets of categories in order to examine the productive tension that a lack of certainty creates. This has also been central to other experiments with encyclopedias including Bataille's *Encyclopaedia Acephalica* (headless encyclopedia), an encyclopedia produced without an ordering principle or classificatory hierarchies.

According to Umberto Eco, the encyclopedia, contrary to the intentions of its Enlightenment origins, cannot contain an absolutely ordered universe in an authoritative and rational way. It can, at best, supply rules that provide some provisional semblance of order. In other words, encyclopedias are attempts at giving meaning to a disordered world whose criteria of order exceeds certainty. To assume that encyclopedias can fulfill the task of achieving certainty is to misunderstand the nature of encyclopedias.

The point is not to do away with the question of the authority of knowledge, but to recognize it as always transient, and to locate it within specific practices and technologies. It is to understand that the authority of knowledge exists within a much wider ambit of a 'knowledge apparatus'. Rather than taking the claims of authority at face value, we should learn from the history of pre-print and early print cultures to recognize that there may exist a much wider world of knowledge, which can neither be contained nor exhausted by the demands of authority. This is the productive tension between the possibilities of knowing completely and never being sure that true knowledge can be produced.

24. Michel Foucault, *The Order of Things*, New York, Routledge, 1989: XVII.
25. See, *Theory, Culture and Society* Vol. 23 (2-3) (May 2006), a special issue dedicated to the new encyclopedia project.

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GENERATING AMBIGUITIES
MAPPING CATEGORY NAMES OF WIKIPEDIA TO UDC CLASS NUMBERS

ALMILA AKDAG SALAH, CHENG GAO, KRZYSZTOF SUCHECKI AND **ANDREA SCHARNHORST**

Introduction

Classification and categorization have comprised abstract thinking from the beginning of philosophy. With the formation of modern natural sciences from the 16th to 18th centuries, classification was one of the main tools used in scientific methodology and, with the fast expansion of human knowledge, for managing and accessing knowledge. The science of 'knowledge orders', i.e. taxonomies, was born from this need. The 19th century as well witnessed the birth of various classification and indexing systems. Among those, Dewey Decimal Classification (DDC), Library of Congress Classification (LCC), and Universal Decimal Classification (UDC) [1] systems are the most known and widely used to classify collections in libraries, museums, archives, etc. However, today's classification systems, structured by various taxonomic methods, have a hefty opponent: folksonomies.

Folksonomies are an outcome of the phenomenon of collective writing and collaborative tagging. With the advancement of wiki and blog software, millions of users actively create, share, and classify various digital content and collections on the internet. [2] Wikipedia is a striking example of these efforts. While users relied at first on search engines for information retrieval and browsed content by following simple links (called page-links) between articles, in 2004, four years after its publication, Wikipedia introduced the concept of user-created categories. Because Wikipedians assign categories to articles and link categories together, these classifi-

1. Ian McIlwaine best explains the relationship between UDC and DDC: 'The Universal Decimal Classification (UDC) is one of the major general classification schemes available for the organization of information. In many ways, it was the forerunner of later developments since, although it is based on the Dewey Decimal Classification (DDC), from the outset it included a number of auxiliary tables for the expression of recurring concepts, such as forms, languages, places, dates, the majority of which were not incorporated into the DDC parent scheme until well into the 20th century. It is translated into a number of different languages, issued in a range of sizes and formats and now is controlled at the UDC headquarters in The Hague.' I. McIlwaine, 'The Universal Decimal Classification: Some factors concerning its origins, development, and influence', *Journal of the American Society for Information Science* 48 (4, 1997): 331-339.
2. One of the first successes in this venue was the opening of U.S. National Archives of photos through a collaboration with Flickr, where users were asked to tag and comment on archival footage: http://www.flickr.com/photos/usnationalarchives. Another important collaboration that opened private collections to internet users was the Flickr common project, where Smithsonian Institute's was a member of the initiative in creating a space for collaborative tagging of the institute vast collections. See M. Kalfatovic, E. Kapsalis, et al., 'Smithsonian Team Flickr: a library, archives, and museums collaboration in web 2.0 space', *Archival Science* 8 (4, 2008): 267-277.

cations are closer to folksonomies then taxonomies. Traditionally, experts handled the classification of knowledge, resulting in a pre-designed system of organization. In contrast to this, the category system in Wikipedia is atypically created through a negotiation process of individual Wikipedia authors. In this study, we scrutinize the end result of this negotiation process, i.e., a snapshot of the category structure of Wikipedia in 2008, by contrasting it with the structure of the UDC system of the same year. Our comparison is not limited to the differences in the structures of these two approaches of knowledge organization, but also takes into account the different contexts that gave rise to UDC and Wikipedia.

Through the exercise of extracting the 'formal/literal' structure of both systems, we can observe the ambiguities and arbitrariness involved in various stages of classification. Moreover, we attempt a translation between the two systems by mapping Wikipedia's top categories to UDC's main classes, [3] which might seem a simple task to a naïve observer. An expert in information studies would know better and be prepared for the possible ambiguities of mapping one intricate system to another. The ambiguities do not arise from fundamental differences in these systems, but because the act of classification is filled with ambivalence, and is tainted with the equivocal nature of language, as well as with the cultural and political context with which it is necessarily bound.

The 'act' of classification is a process open to philosophical and theoretical questioning. Deconstructing a classification system takes the researcher back to this process and invites him to question how and why the boundaries and relations between classes are set. In this paper, we reconstruct the structures of Wikipedia and UDC, deconstruct those, and attempt a reconstruction of one into another. This process of deconstruction and reconstruction itself is more important than the achieved results, as our aim here is to highlight the presence and magnitude of the ambiguities, not to describe the ultimate algorithm to overcome them.

The paper is divided into four sections: first, we briefly summarize the main principles of classification theories and highlight the differences in creating, maintaining, and updating such a system with Wikipedia's collective writing approach. Second, we familiarize the reader with the history of the UDC, its classification principles, and structure. In the third section, we give an overview of previous research done to extract Wikipedia's category structure. In the last section, we elaborate on the ambiguities in mapping Wikipedia's top-level categories to UDC classes while explaining our methodology and report our results. We conclude by returning to our argument at the onset – completing the cycle – that no matter which method is chosen, the ambiguity will remain.

An Expert Eye Versus the Eyes of the Crowd

As Clare Beghtol notes in her paper on classification theory, 'knowledge organization classification theories and the systems they give rise to are cultural artifacts that directly reflect the

3. For all practical purposes, a 'category' in Wikipedia, and a 'class' in UDC serve to denote the same operation, i.e., to be used as a term for grouping items that belong together. Throughout the paper, we will retain the two terms in order to differentiate between Wikipedia and UDC with ease. Thus, a 'top category' in Wikipedia is called a 'main class' in UDC.

cultural concerns and contexts in which they are developed'. [4] Most of these theories, and the systems that are based on them, date to modern times (late 19th, early 20th century), but thanks to the experts' updates, they are still in operation in libraries all over the world. In this section, we visit these theories with the purpose of juxtaposing an understanding of their creation and their applied functionality on those of Wikipedia.

Classification is a clear-cut act that organizes a given number of artifacts into meaningful groups. The act follows the principle of creating 'two major groups: 1) a group of things that all belong to a particular larger group and 2) another group of things that do not belong to that larger group'. [5] Unfortunately, the approach is manifested through natural language and is a slave to its medium of operation. The words used both for naming or describing the artifacts and for naming the groups themselves might give rise to multiple meanings. Moreover, the group names are expected to describe everything that falls under a specific group.

There are two basic rules followed when creating a group: each class should be 'mutually exclusive' and 'jointly exhaustive'. In order to be 'mutually exclusive', an artifact can belong only to one class, and no class is allowed to have overlapping content. 'Joint exhaustivity' involves the regulation that 'each class in the classification system and the entire classification itself should contain all and only those things that are appropriate to the classes and to the entire system. Nothing relevant should be omitted, and nothing irrelevant should be included'. [6] These two basic principles are disregarded entirely in Wikipedia for different reasons: First, 'mutual exclusiveness' (i.e., that every article should belong only to one class) was not set up as a rule when Wikipedia enabled authors to categorize articles. Thus, a Wikipedia article can belong to more than one group, and this is in fact the rule rather than the exception in practice. Second, 'joint exhaustivity' is impossible to implement in an increasingly expanding knowledge space such as Wikipedia, where knowledge accumulation happens at a breathtaking pace.

S.R. Ranganathan, sometimes depicted as the founder of the 'modern theory of classification', [7] theorized that the act of classification consists of three steps: the idea plane, the verbal plane,

4. Clare Beghtol, 'Classification Theory', *Library* (no. 713587148. doi:10.1081/E-ELIS3-120043230, 2010), p. 1045.
5. Ibid., p. 1046.
6. Ibid., p. 1046.
7. S.R. Ranganathan is considered to be the father of library science in India (see Ravindra N. Sharma, *Indian Academic Libraries and Dr. S.R. Ranganathan: A Critical Study*, New Delhi: Sterling Publishers, 1986, and Anand P. Srivastava, *Ranganathan, A Pattern Maker: A Syndetic Study Of His Contributions*, New Delhi: Metropolitan Book Co, 1977). Moreover, the use of facets were first suggested by Ranganathan in 1926, when he defined five basic categories, through the combination of which any content should be successfully represented. These categories were personality, matter, energy, space, and time. Today, to use facets is a more favored approach in knowledge organization, since with the help of facets it is possible to combine single elements, giving flexibility to the classification system (see V. Broughton, *The Need For A Faceted Classification As The Basis Of All Methods Of Information Retrieval*, Emerald Group Publishing Limited, 2006.)

and the notational plane.[8] We will use his operationalization to analyze and relate Wikipedia's category system to classical knowledge organization systems. The idea plane is the first phase of classification and asks for a thorough study of the intended audience and the content of the artifacts. Then, based on such a study, the purpose and the structure of the classification system are planned out. This phase draws the foundation of the knowledge organization that follows and the rules of expansion that should be used in case the classification system needs to be updated. Unfortunately, Wikipedia's category system lacks this phase of pre-planning and suffers from its absence greatly.

The verbal plane involves the actual classification act, where the content is grouped into classes according to the structure and rules that are decided upon during the idea plane. Its main purpose is 'to express and demonstrate the relationship(s) between and among concepts in the knowledge organization classification'.[9] In Wikipedia, the verbal plane is partially in existence: the classification of articles are certainly in place, but this process is not an extension of pre-defined principles and it does not attempt to set rigid boundaries between classes to define relationships between concepts. The verbal plane in Wikipedia resembles rather a vague act of grouping articles into fuzzy sets:[10] each article can belong to more than one set, and the relations between these sets are equally vague. On average we can say that most of the articles belong to three to five categories, and the categories themselves are not ordered in a hierarchical way.

The last phase in Ranganathan's theory is called the notational plane, which is a translation process of the verbal plane into code, and involves another stage to design how code should replace the language. Needless to say, categorization of Wikipedia never had a notational plane, nor any codes that are used instead of terms. However, the absence of a notational plane is not as crucially influential as the lack of an idea plane.

Universal Decimal Classification

The foundation of UDC goes back to two Belgian lawyers, Paul Otlet and Henri La Fountaine, who as early as 1895 envisaged a classification system that should be able to organize all existing knowledge. Unlike the LCC and DDC systems, which were becoming the norm at that time, UDC's main aim went beyond classifying documents in libraries.[11] Its original intention was 'to embrace the whole knowledge'.[12] Multilingual editions and applications in the context of museums are expressions of this aimed universality. In terms of the structure of UDC, it

8. S.R. Ranganathan, *Prolegomena to Library Classification*, Madras: Madras Library Association, 1937.
9. Ibid., p 1048.
10. For the influence of Fuzzy Set theory in classification theories, see Stephen J. Bensman, 'Bradford's Law and Fuzzy Sets: Statistical Implications for Library Analyses', *International Federation of Library Associations (IFLA) Journal* 27(4, 2001): 238-246.
11. W. Boyd Rayward, *'The Universe of Information: The Work Of Paul Otlet For Documentation And International Organization'* (FID 520), Moscow: VINITI, 1978.
12. Ian C. McIlwaine, 'The Universal Decimal Classification: Some Factors Concerning Its Origins, Development, and Influence', *Journal of the American Society for Information Science* 48 (4, 1997): 331-339.

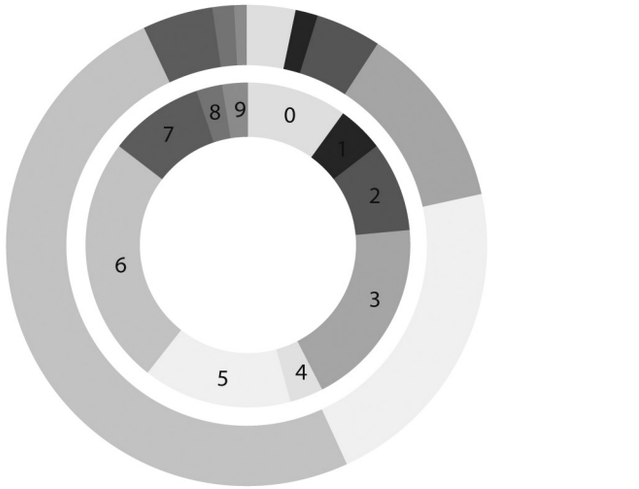
is best to make a quick comparison with its forerunners DDC and LCC: while borrowing the same numerical notational approach of DDC, UDC introduced the idea of 'auxiliaries', which enabled combinations of any two classes (indicated by a string of numbers) through the use of a column.

The first edition of UDC began in 1905 and has since expanded with the addition of overlapping 20th century concepts. Now the full version of the system contains about 200,000 UDC classes, each expressing a certain concept. More recently, the idea that a smaller version, which should be created and maintained by a selected editorial board, would be better both in structure and in answering the general need, has been gaining momentum.[13] In 1989, the UDC Management assigned a task force to investigate the state of UDC's management and to make suggestions for improving its future classification strategy. The 1985 English edition conformed to the recommendations of the task force; it was of medium size and already in digital format. The launch of the updated master file happened in 1993. The data that we analyze in this paper stems from the 2008 version of this master file: all the editions since 1993 are published yearly in a book, as well as in digital format, and record the changes in the subclasses through announcement of deletions, replacements, and additions.[14]

Here we should stress one important fact about using such a database: the master reference file is exactly what its name implies, i.e., it is a reference text to be used in classifying a 'collection'. It is a set of terms, called 'classes', that are translated to numbers. Thus, each class has its own string of numbers and, according to its position in the UDC, has a certain amount of numbers. The main classes for example have only one string: from [0] to [9], and the first level (or depth) subclasses have two strings, and so on. These UDC classes are used to organize collections. A collection could be in any format; usually library collections vary from any printed material such as books, journals, manuscripts, etc., to various media formats such as CDs, DVDs, etc. In digital libraries the content of the collection might vary even more, and include image, audio, and video formats beside electronic texts.

In knowledge organization studies, the materials belonging to a collection to be classified are characteristically addressed as 'documents'. For example, Wikipedia articles can be termed as 'documents' belonging to a huge collection, and theoretically it is possible to classify this collection with the help of the UDC Master reference file. This is then the crucial difference between the two databases we use in this study: the UDC Master reference file basically consists of terms and some guidelines about how to use these terms, whereas the Wikipedia database consists of both the category names, and the collection itself. We use this collection in order to generate a hierarchical structure of the category names, whereas in UDC, the hierarchy is already defined through the notation of terms, placing each subclass under a specific main-class.

13. Aida Slavic, Maria Ines Cordeiro, and Gerhard Riesthuis, 'Maintenance of the Universal Decimal Classification: Overview of the Past and the Preparations for the Future', *ICBS* 47 (2008): 23-29.
14. Ian C. McIlwaine, 'The Universal Decimal Classification – A Guide To Its Use' in (revised ed.) The Hague: UDC Consortium, 2007.



0. Science and Knowledge. Computer Science.Information
1. Philosophy. Psychology
2. Religion. Theology
3. Social Sciences. Statistics. Politics. Economy. Law
4. philology
5. Mathematics. Natural Sciences
6. Applied Sciences. Medicine. Technology
7. Arts. Entertainment.Sport
8. Language. Linguistic. Literature
9. Geography. Biography. History

Figure 1: Category distribution of ten main classes in UDC. [Inner ring: 1905/ Outer ring: 2008]

UDC, like other classification systems of its time, has ten top classes referred to as 'main classes'. [15] In Figure 1, the distribution of these ten classes is depicted for two different years, 1905 and 2008, respectively. We digitized the entries of the 1905 publication of UDC. [16] This first version of UDC, published in French, has only 391 records in total. The main classes in 1905 were:

[1] Philosophie
[2] Religion. Theologie
[3] Sciences sociales et Droit
[4] Philologie. Linguistique
[5] Sciences mathematiques, physiques et naturelles
[6] Sciences appliquees. Technologie
[7] Beaux-Arts
[8] Litterature. Belles-Lettres
[9] Histoire et Geographie

(See Figure 1 for the English categories as used in 2008).

15. Shirley F. Harper, 'The Universal Decimal Classification', *American Documentation* 5 (1954): 195–213.
16. Manuel Abrege du Repertoire, *Bibliographique Universel*, Bruxelles: Institut International de Bibliographie, 1905.

Two main changes occurred in these top classes over a hundred years: first, the second-level category '[01] Bibliographie' became a part of the main class scheme and was expanded to include not only library studies, but 'Science and Information Organization' in general. A new addition to this class is 'Computer Science'. Secondly, the class '[4] Philology. Linguistics' was dropped by moving 'Linguistics' to '[8] Literature', and removing the term 'Philology' from the top classes. Beside these shifts in the main classes, the main structure of UDC remained stable and saw only changes at lower levels. Of course, each class was expanded by the addition of either new disciplines or by the deletion, addition or replacement of various terms at the subclass level. For example '[3] Social Sciences and Law' today hosts economy, politics, and law at the top class level, and '[7] Arts' is expanded by the addition of entertainment and sports, again at the top class level.

More importantly, the overall balance of the distribution in classes has changed drastically. The first editions of UDC attempted to encompass 'the universal knowledge', which is reflected in the (comparatively) even distribution of top classes. The UDC today, however, is mainly occupied with natural and applied sciences. In 1905, 39% of the records (UDC numbers) belonged to sciences, i.e., to categories [5] or [6], whereas 73% of 2008's master reference file is devoted to these two classes. This remarkable tendency might reflect the increasing societal importance of science and technology, but it might also be a consequence of the development of libraries and bias in library collections, for which UDC is mainly used today. However, the increase in the number of records belonging to 'Natural Sciences and Applied Sciences' does not necessarily reflect a decrease in other areas of human knowledge production. Looking at the UDC numbers per class, we see that all classes have grown remarkably over time. A comparison with Wikipedia reveals a much richer category structure in culture and arts and points to the great amount of content not properly treated by UDC. It rather shows how much UDC's main goal has changed from accounting for all human production to focusing more on knowledge production in scientific disciplines.

Wikipedia

Wikipedia has become a research venue in itself, providing a rich source of data for various projects from natural language processing (NLP) to text analysis. Furthermore, Wikipedia itself as a phenomenon has been studied meticulously from multiple points: its network structure, growth, and collaborative nature. Yet among this bout of research, a few studies aside, Wikipedia's category structure and topical coverage have not received much scrutiny. Holloway, et al. compared the top categories and the classification structure of Wikipedia in 2005 to widely used encyclopedias like *Britannica* and *Encarta*. [17] Halavais, et al. evaluated the topical coverage of Wikipedia by randomly choosing articles, manually assigning categories to them and mapping the distribution of these to the distribution of published books. [18] A more recent study by Kitter, et al. analyzed the growth of categories and developed an algorithm to semantically map articles through their category links to 11 manually selected

17. Tod Holloway, Miran Bozicevic, and Katy Börner, 'Analyzing and Visualizing the Semantic Coverage of Wikipedia and Its Authors', *Complexity* 12 (No 3, 2007): 30-40.
18. Alexander Halavais, and Derek Lackaff, 'An Analysis of Topical Coverage of Wikipedia', *Journal of Computer-Mediated Communication* 13 (2, 2008): 429-440.

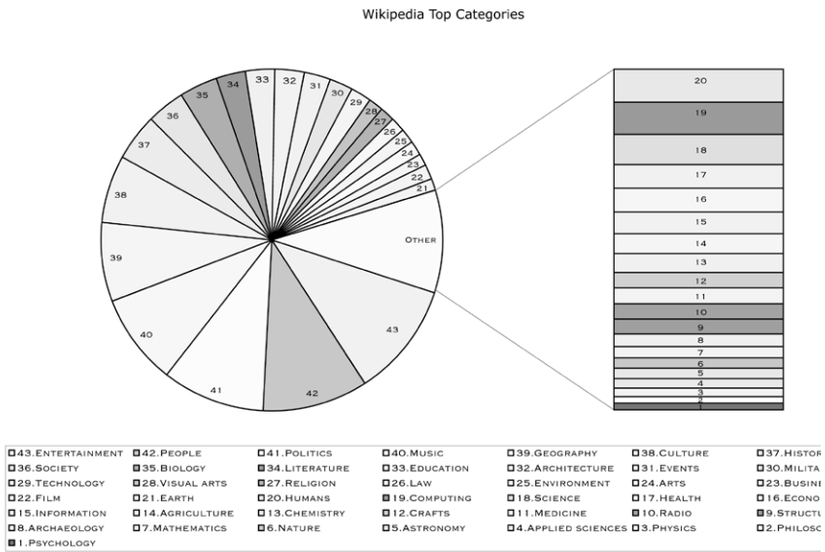


Figure 2: Distribution of Top Categories in Wikipedia (based on Wikipedia dump 2008).

categories.[19] Our work follows a similar approach, with a focus on category pages and their semi-hierarchy. But before explaining our method in detail, let us emphasize an important distinction in Wikipedia: the encyclopedia consists of differently tagged pages – category pages and article pages. Article pages have descriptive text on a given topic, whereas category pages look like simple links positioned at the bottom of each article page. Unless you click on one of these links (or searched specifically for a category), you would not see a typical category page consisting only of links to its subcategories.

As noted before, the network of categories is not strictly hierarchical, does not have clearly defined 'top' categories, and contains many loops. Still, it possesses a vague hierarchical order that is possible (to an extent) to distinguish. To analyze the distribution of articles in 'top' categories, we first had to define what these 'top' categories are. In January 2008, we decided to take 'Category: Main topic classifications' as the root of our category structure. This category page contains all high-level topical categories. The category tree was then recreated in a hierarchical way, starting from this root. All categories belong to a certain 'depth', defined as a distance to the root along the category links. Any links that did not follow the hierarchy were discarded (like links between categories at the same depth), and loops were eliminated. Then, all articles were given an initial weight of one. The weight was then propagated up the hierarchical structure using fractional assignment, so that an article page with three categories contributed 1/3 weight units to each of the three categories. The weights were propagated to the level of our 'top' categories. Because of the fractional assignment,

19. Aniket Kittur, Ed H. Chi, and Bongwon Suh, 'What's in Wikipedia? Mapping Topics and Conflict Using Socially Annotated Category Structure', *Distribution* (2009): 1509-1512.

Business

	1	2	3	4	5	6	7	8	9	10	11	12
0	0	0	0	1	0	2	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	3	9	14	7	1	2	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0
6	0	1	1	1	1	9	6	1	1	0	0	0
7	0	0	0	0	1	2	1	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0

Figure 3: Term occurrence of 'Business' in UDC classes.

the sum of the weights equals the total number of articles found in the whole hierarchical network under the root category. Figure 2 shows the distribution of all category pages to the 43 selected categories at the first level, i.e., directly connected to the root node.

Having 43 top categories may seem excessive, especially since many of those can easily be grouped together, or even replaced as sub-categories of each other. For example, it could be argued that Biology, Chemistry, Physics, and Mathematics belong together and can be put under the category of Science. Actually, in the Wikipedia category network, this type of arguments applies to many cases, and the occurrence of one category both as a subcategory and as a parent category is not uncommon. These occurrences not only reflect the lack of the idea plane in category assignment, but also show the absence of expertise in 'collective' tagging.

Mapping Category Names of Wikipedia to UDC Class Numbers

In Kitter, et al.'s study of Wikipedia's category structure, the article collection divides into 11 top categories in quite a similar fashion to typical classification systems. However, these top categories are not derived from an expert knowledge organization, but are based on a Wikipedia portal article that attempts to reduce the actual number of top categories by regrouping them into 11 main classes. Here, instead of using this page, and/or trying to re-organize the top 43 categories arbitrarily, we attempt to map them into the top nine UDC classes. This exercise demonstrates that most of the 'top' categories of Wikipedia belong to one of the main tables of UDC at the second level, and some can even be directly mapped to UDC's top classes. However, certain categories, such as People, Humans, Nature, Health, Environment, etc., do not have a direct equivalent in UDC at the second level. To resolve this issue, we tested different variants of a 1:1 mapping algorithm and concluded that a 'naïve' mapping is not reliable under any circumstances.

In order to demonstrate what we mean with 'naïve' mapping, let us go through an example: Business is a top category in Wikipedia 2008. If we look at the top class descriptions of UDC, the class '[3] Social Sciences, Economy, Politics, Statistics, Law' seems to be the best place to position the 'Business' category. This kind of argument is what we mean by 'naïve' mapping. A more elaborate way of mapping would be to search for the word 'Business' in terms belonging to UDC classes and determine the subclasses that contain the term. If the highest number of occurrences is in class [3], then our naïve mapping is confirmed. Figure 3 shows the occurrence matrix of the word 'Business' among UDC classes.

The rows are the UDC classes, and the columns are the class levels (or depth). The top classes in UDC are assigned numbers between [0]-[9], which is level zero. All classes that have two decimal numbers, i.e., [00]-[99], reside at level one. If we count the number of occurrences of 'Business', we should put it under the class [3], which confirms our naïve mapping. However, if we assign weights to the levels of the occurrence, then we see that 'Business' appears in '[6] Applied Sciences' on the second level, which takes precedence. Since UDC follows a strict hierarchy, when a term appears on a particular class, all subclasses of this class necessarily belong to the category represented by the term. Thus, we should put 'Business' under 'Applied Sciences'. Let us take a look at another category: 'Science' is a top category in Wikipedia. When checked, it appears in three main classes in UDC, namely in '[0] Science and Knowledge Organization', '[5] Natural Sciences', and '[6] Applied Sciences'. The problem is not solved even if we assign weight to classes, since the term occurs in classes that are at the same level.

Our initial solution to the allocation of problematic categories is in close reading of the results by checking each occurrence of the terms. In some instances, it is possible to eliminate the occurrence because the usage is clearly in a different context than the one intended in Wikipedia. If we return to our example of 'Science', we see that on the second level, when it occurs in class [0], it is in the context of defining, understanding, and criticizing science. The subclass descriptions are as follows: 'Significance of science and knowledge in general', 'Advancement of science and knowledge in general', 'Falsification of science', 'Organization of science and scientific work', 'Criticism of science', and 'Objections to science'. Even though science as a term appears more in the third and lower levels in classes [3], [5], and [6], and it is quite distributed, it is more appropriate to assign it to class [0].

More often than not, the change in the meaning of a term is not an indication for eliminating a connection. For example, the Wikipedia category 'Radio' appears mostly in three different classes in the UDC, namely in [3], [5], [6], and once in [7]. Apparently the meaning and usage of radio in natural sciences and in arts are distinctly different, and we cannot map the Wikipedia category of 'Radio' without knowing what it covers in Wikipedia itself. The investigation of subcategories of Wikipedia is needed: we see that 'Radio' is used both as a physical entity (as in radio waves, etc.), thus belonging to the classes of both applied and natural sciences, as well as a category for entertainment, as for example in 'radio stations'. To overcome this problem, we searched for UDC class terms in Wikipedia category page names with the same counting algorithm, using the fractional assignment. Table 1 shows how many occurrences of UDC terms from a given class can be found in category names under

Class Names	[0]	[1]	[2]	[3]	[5]	[6]	[7]	[8]	[9]
Mathematics	0,02	0,02	0,00	0,17	0,62	0,00	0,03	0,11	0,02
People	0,02	0,00	0,16	0,27	0,00	0,02	0,40	0,03	0,11
Science	0,16	0,03	0,00	0,10	0,01	0,42	0,05	0,16	0,06
Chemistry	0,13	0,00	0,00	0,13	0,00	0,19	0,22	0,16	0,19
Music	0,14	0,01	0,02	0,18	0,01	0,01	0,28	0,30	0,06
Philosophy	0,05	0,66	0,08	0,03	0,00	0,00	0,00	0,15	0,03
Law	0,02	0,00	0,00	0,95	0,00	0,00	0,01	0,01	0,02
Literature	0,05	0,01	0,00	0,06	0,00	0,00	0,02	0,82	0,03
Physics	0,09	0,11	0,00	0,34	0,04	0,22	0,09	0,05	0,05
Medicine	0,12	0,00	0,00	0,06	0,00	0,56	0,02	0,01	0,22
Biology	0,13	0,02	0,00	0,06	0,00	0,05	0,06	0,12	0,56
Religion	0,43	0,01	0,38	0,06	0,00	0,00	0,00	0,03	0,09
Astronomy	0,52	0,00	0,00	0,20	0,00	0,00	0,00	0,03	0,25
Entertainment	0,03	0,00	0,00	0,04	0,00	0,00	0,86	0,02	0,05
Radio	0,00	0,00	0,00	0,01	0,00	0,05	0,47	0,45	0,02
History	0,02	0,00	0,00	0,03	0,00	0,00	0,06	0,04	0,85
Geography	0,05	0,00	0,02	0,12	0,00	0,00	0,28	0,01	0,53
Culture	0,02	0,00	0,07	0,05	0,00	0,00	0,47	0,35	0,03
Agriculture	0,18	0,00	0,04	0,43	0,00	0,07	0,16	0,00	0,12
Politics	0,05	0,00	0,01	0,67	0,00	0,00	0,17	0,00	0,10
Psychology	0,11	0,77	0,03	0,01	0,00	0,00	0,03	0,02	0,03
Archaeology	0,00	0,00	0,05	0,13	0,00	0,01	0,12	0,15	0,53
Nature	0,16	0,04	0,04	0,18	0,00	0,04	0,34	0,16	0,05
Technology	0,03	0,00	0,00	0,02	0,00	0,25	0,65	0,00	0,04
Education	0,03	0,01	0,01	0,84	0,00	0,05	0,03	0,03	0,01
Applied_sciences	0,28	0,03	0,00	0,13	0,02	0,15	0,05	0,32	0,02
Economics	0,11	0,00	0,00	0,64	0,00	0,00	0,12	0,00	0,13
Computing	0,10	0,00	0,00	0,05	0,01	0,09	0,07	0,65	0,05
Architecture	0,02	0,00	0,00	0,19	0,00	0,01	0,71	0,00	0,06
Military	0,11	0,00	0,01	0,07	0,00	0,00	0,09	0,00	0,72
Health	0,17	0,01	0,00	0,15	0,00	0,26	0,39	0,00	0,02
Earth	0,02	0,00	0,01	0,06	0,00	0,00	0,58	0,08	0,25
Business	0,10	0,00	0,00	0,61	0,00	0,02	0,10	0,13	0,04
Information	0,38	0,03	0,01	0,16	0,01	0,05	0,10	0,23	0,05
Visual_arts	0,14	0,00	0,00	0,12	0,00	0,01	0,53	0,06	0,14
Society	0,36	0,01	0,13	0,17	0,00	0,01	0,08	0,17	0,08
Humans	0,38	0,02	0,01	0,14	0,00	0,00	0,18	0,17	0,08
Film	0,01	0,00	0,00	0,01	0,00	0,03	0,07	0,83	0,05
Events	0,48	0,00	0,00	0,00	0,00	0,00	0,50	0,00	0,01
Crafts	0,17	0,00	0,00	0,57	0,00	0,01	0,21	0,01	0,03
Environment	0,11	0,00	0,01	0,10	0,00	0,03	0,21	0,00	0,54
Arts	0,04	0,00	0,00	0,07	0,00	0,00	0,81	0,06	0,00
Structure	0,86	0,00	0,00	0,05	0,01	0,01	0,03	0,00	0,04

Table 1: Occurrences of UDC main class terms in top Wikipedia categories.

a certain Wikipedia category. For example, the top-left number (terms in the UDC class [0]) shows that there were 1.33 (fractional) occurrences of any of the following terms: 'Science and Knowledge', 'Organization', 'Computer Science', 'Information', 'Documentation', 'Librarianship', 'Institutions', 'Publications', in Wikipedia categories found under 'Mathematics'.

In order to solve the problem of assigning 'Radio', we can use Table 1. Among all the UDC main class terms, the classes '[7] Arts. Entertainment. Sports' and '[8] Linguistic. Language' have the highest occurrence numbers in the corresponding row. This means that these terms (i.e., 'arts', 'entertainment', etc.) have the highest frequency among the subcategory terms of 'Radio'.

Here, two issues should be addressed: first, there is no distinction between different levels where UDC terms occurred. Occurrence of the term 'Mathematics' in Wikipedia's category of 'Mathematics' is given the same weight as its occurrence in, for example, 'Awards in Mathematics', which might be four levels lower than 'Mathematics'. However, the terms lower in hierarchy are often diluted among several top categories, and in Wikipedia a top-class does not hierarchically cover all its subclasses. The second issue is that different UDC classes contain a different number of terms. A term-rich class has statistically more chance to find a match than term-poor classes.

So far we have discussed four different levels of mapping. The first is naïve mapping by users. (See Table 2 for problematic classes.) The second is the term match, where the 43 top Wikipedia categories were searched in UDC Master Reference File. The results clarified the positions of some problematic categories of naïve mapping. However, they added a level of ambiguity for clearly assigned categories of the first approach. The third is manual reading of ambiguous categories by checking their occurrences in UDC, and the fourth is the search for UDC terms in Wikipedia category page names.

Table 2 lists all the categories and their 'ambiguity' status after each stage. Each category is colored according to the main class it is assigned or left blank if its status is ambiguous. At the 'naïve' mapping stage, categories that are more abstract or have more cultural connotations are ambiguous: 'Humans', 'People', 'Events', 'Culture', 'Radio', 'Environment', 'Earth', 'Health', and 'Military'. After the second stage, some of these categories can easily be assigned, and some have switched positions. To our surprise, some categories such as 'Computing', 'Science', 'Structure', 'Visual Arts', 'Crafts', 'Business', 'Society' and 'Physics' were hard to place solely by the occurrence matrix. Even the third stage was not sufficient for some categories; for instance 'Visual Arts' as a phrase is not used in UDC at all. The ambiguous categories after the third phase were similar to those of the first phase. The fourth stage unsettled some of the settled categories but clarified the ambiguity for categories such as 'Radio', 'Culture', and 'Events', by assigning them to two classes simultaneously. New ambiguous categories after this stage mostly belong to 'Sciences' in general (i.e., 'Computing', 'Astronomy', 'Physics', 'Chemistry', 'Biology', 'Earth', 'Agriculture', 'Nature', 'Technology', and 'Applied Sciences'). This is a consequence of the more technical vocabulary used in scientific articles. The category names for those are more precise and do not accommodate more general words that were used in the term search. Hence, for most of these categories one can see an equal distribution of occurrences and/or wrong assignments.

	Phase 1	Phase 2	Phase 3	Phase 4
Computing	0	NA	0	NA
Science	0	NA	0	6
Structure	0	NA	0	0
Information	0	0	0	0
Psychology	1	1	1	1
Philosophy	1	1	1	1
Religion	2	2	2	2/0
Business	3	NA	3	3
Economics	3	3	3	3
Law	3	3	3	3
Politics	3	3	3	3
Society	3	NA	3	NA
Education	3	3	3	3
Astronomy	5	5	5	NA
Biology	5	5	5	5
Chemistry	5	5	5	NA
Mathematics	5	5	5	5
Physics	5	NA	5	NA
Agriculture	6	6	6	6
Nature	6	NA	NA	6
Technology	6	6	6	6
Applied_sciences	6	6	6	NA
Medicine	6	6	6	6
Architecture	7	7	7	7
Arts	7	7	7	7
Visual_arts	7	NA	NA	NA
Film	7	7	7	0
Music	7	7	7	7/0
Entertainment	7	7	7	7
Crafts	7	NA	7	3
Literature	8	8	8	8
Geography	9	9	9	9
History	9	9	9	9
Archaeology	9	9	9	9
Events	NA	NA	NA	1/0
Culture	NA	NA	NA	1/8
Military	NA	NA	3	9
Earth	NA	NA	5	7
Health	NA	6	6	NA
Environment	NA	5	NA	9
Radio	NA	NA	NA	7/0
People	NA	3	NA	0
Humans	NA	NA	NA	0

- 0. Science and Knowledge. Computer Science.Information
- 1, Philosophy. Psychology
- 2. Religion. Theology
- 3. Social Sciences. Statistics. Politics. Economy. Law
- 4. philology
- 5. Mathematics. Natural Sciences
- 6. Applied Sciences. Medicine. Technology
- 7. Arts. Entertainment.Sport
- 8. Language. Linguistic. Literature
- 9. Geography. Biography. History

Table 2: Assignment of Wikipedia top categories to UDC main classes according to 4 different approaches.

Conclusion

Wikipedia is often referred to as the best example of collective knowledge creation, folksonomies, and the wisdom of the crowds. UDC, on the other hand, is a classic example of a knowledge order designed and updated by defined expert groups. The category structure of both systems reflects their background: UDC, since it is strictly controlled, has a perfect hierarchy and devotes a heavy share of its classes to topics such as technology and sciences. In contrast, Wikipedia lacks one distinct hierarchy and has more of a web-like structure with multiple hierarchies, where, paradoxically, a top category is a subcategory of one of its own subcategories. These shortcomings, basically an outcome of the missing idea plane, are balanced by virtue of Wikipedia's fast expansion through user contributions. This keeps Wikipedia up to date and serves as an alternative to academic and scientific knowledge production covering more topics on arts, culture and society.

In this study, we have shown that a simple mapping between Wikipedia and UDC category structure is problematic, firstly due to the nature of the act of classification itself. Secondly, the differences in the structure and distribution of both systems add new problems to this process. To draw attention to the resulting ambiguity and problems of such translations, we have demonstrated that a simple approach based on domain knowledge and background created highly controversial 'left-over' categories. A keyword search in the UDC database clarified the position of some ambiguous categories but required manual adjustment. Even this adjustment was not enough to properly assign some categories, so we applied a second keyword analysis to find UDC main class keywords in Wikipedia categories. While this stage solved some of the problems, we freely admit that the results are far from perfect.

Remaining for future research is a complete text analysis of Wikipedia. Not only of its categories, but its entire content should be analyzed via text analysis tools to disambiguate category assignments. For this, we can either map each article page to the appropriate UDC class or use a topic classification algorithm to find the best group of articles that fall under a given UDC main class. However, both of these approaches risk concealing a fundamental issue: the mentality behind the categorization process of Wikipedia. In this case, what we study is a global and universal (at least in its scope) system of knowledge gathering, while UDC represents a set of basic rules for an indexing language to be enriched and tailored according to user needs.

As we started our discussion with Clare Beghtol, it seems fitting to conclude with another of her quotations: 'Classification systems are intellectual, and fundamentally also political, constructs: they represent, and impose, a view of the world at a certain time and in a certain environment'.[20] While it is important to remember the relevant content and context of classification systems expressed here, we need to explore these kinds of general mapping to find new organizations of knowledge, better navigate through information landscapes, bridge knowledge domain specific systems, and ensure both overviews and deep insights into available knowledge. Even if the outcome is not without ambiguity, the process helps us to better understand the nature of the knowledge generating systems we deal with.

20. G. Dudbridge, *Lost Books of Medieval China*, The British Library: London, 2000; p. 12, cited in Beghtol, Clare, 'Classification Theory', Library (no. 713587148. doi:10.1081/E-ELIS3-120043230, 2010), p. 1058.

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THE LIVES OF BOTS

R. STUART GEIGER

Introduction: An Unlikely Candidate

In late 2006, members of the English-language version of Wikipedia began preparing for the third annual election for the project's Arbitration Committee – or ArbCom, for short. In its own words, the dozen-or-so member committee 'exists to impose binding solutions to Wikipedia disputes that neither communal discussion, administrators, nor mediation have been able to resolve'. As they are tasked with making controversial decisions when there is no clear community consensus on a given issue, arbitrators hold some of the most powerful positions of authority in the project. In fact, ArbCom is often called Wikipedia's high or supreme court, and it should be no surprise that elections for the few seats that open each year are hotly contested. In this particular election, nominations for open seats were accepted during November 2006; according to the established rules, all editors who made at least 1,000 edits to the encyclopedia project as of October of that year were eligible to run.

In all, about 40 editors meeting these requirements nominated themselves or accepted the nominations of others, which formally involved submitting a brief statement to potential voters with reasons why they would be good arbitrators. One such candidate was an editor named AntiVandalBot, an autonomous computer program that reviewed all edits to the project as they were made and reverted those that, according to its sophisticated algorithms, were blatant acts of vandalism or spam. This bot was written and operated by a well-known administrator named Tawker, who, in a common convention, used separate user accounts to distinguish between edits he personally made and those authored by the program. AntiVandalBot's statement to voters drew on many tropes common in Wikipedian politics, including a satirical description of its accomplishments and adherence to project norms (like Neutral Point of View or NPOV) in the same rhetorical style as many other candidates: [1]

> I always express NPOV on any decision I make because I have no intelligence, I am only lines of code. I also never tire, I work 24 hours a day, 7 days a week. I think I have the most of edits of any account on this Wiki now, I have not counted since the toolserver database died. Taking a look at my talk page history, my overseers ensure that all concerns are promptly responded to. In short, a bot like me who can function as a Magic 8 Ball is exactly what we need on ArbCom! -- AntiVandalBot 05:20, 17 November 2006 (UTC)

While some Wikipedians treated the bot with at least an ironic level of seriousness, others were frustrated at Tawker, who denied he was acting through his bot and insinuated it had become self-aware. One editor removed the bot's candidate statement from the election page without prior discussion, but Tawker had AntiVandalBot quickly revert this removal of content

1. Note: all quotes from discussions in Wikipedia are directly copied and appear with no corrections. [sic] marks are not included due to the significant number of errors present in some of the quotes.

as an act of vandalism. Another editor deleted the statement again and urged seriousness in the matter, but Tawker replaced the bot's nomination statement again, this time under his own account. Coming to the aid of his bot, Tawker passionately defended the right of any editor – human or bot – with over a thousand edits to run in the election. On cue, the bot joined in the discussion and staunchly defended its place in this political sphere by exclaiming, 'I do not like this utter bot abuse. Bots are editors too!'

I make the same argument in this chapter, although in a markedly different context. Tawker, speaking through his bot, was ironically claiming that computerized editors ought to have the same sociopolitical rights and responsibilities as human editors, capable of running for the project's highest elected position and influencing the process of encyclopedia-building at its most visible level. In contrast, I argue (with all seriousness) that these automated software agents already have a similar level of influence on how Wikipedia as a free and open encyclopedia project is constituted. However, like the elected members of ArbCom, bots are also subject to social and political pressures, and we must be careful not to fall into familiar narratives of technological determinism when asking who – or what – *actually* controls Wikipedia.

Simple statistics indicate the growing influence of algorithmic actors on the editorial process: in terms of the raw number of edits to the English-language version of Wikipedia, automated bots are 17 of the top 20 most prolific editors [2] and collectively make about 16% of all edits to the encyclopedia project. [3] On other major language versions of the project, the percentage of edits made by bots ranges from around 10% (Japanese) to 30% (French). [4] While bots were originally built to perform repetitive editorial tasks that humans were already doing, they are growing increasingly sophisticated and have moved into administrative spaces. Bots now police not only the encyclopedic nature of content contributed to articles, but also the sociality of users who participate in the community. For example, there is a policy in Wikipedia called the 'Three Revert Rule' or '3RR' that prohibits reversing another user's edits more than three times in a 24-hour period on a particular article; a bot named '3RRBot' scans for such violations and reports them to administrators. In an administrative space dedicated to identifying and banning malicious contributors (Administrative Intervention against Vandalism, or AIV), bots make about 50% of all edits, and users with semi-automated editing tools make another 30%. [5] Even bots that perform seemingly routine and uncontroversial tasks, like importing census data into articles about cities and towns, often incorporate high-level epistemic assumptions about how an encyclopedia ought to be constructed.

2. Aggregated from data collected from http://en.wikipedia.org/wiki/Wikipedia:List_of_bots_by_number_of_edits and http://en.wikipedia.org/wiki/Wikipedia:List of Wikipedians by number of edits.
3. R. Stuart Geiger, 'The Social Roles of Bots and Assisted Editing Tools', *Proceedings of the 2009 International Symposium on Wikis and Open Collaboration,* Orlando, FL: Association for Computing Machinery, 2009.
4. Felipe Ortega. 'Wikipedia: A Quantitative Analysis', Ph.D dissertation, Universidad Rey Juan Carlos, April 2009, https://www.linux-magazine.es/Readers/white_papers/wikipedia_en.pdf.
5. R. Stuart Geiger and David Ribes, 'The Work of Sustaining Order in Wikipedia: The Banning of a Vandal', *Proceedings of the 2010 Conference on Computer Supported Cooperative Work,* Savannah, GA: Association for Computing Machinery, 2010.

My goal in this chapter is to describe the complex social and technical environment in which bots exist in Wikipedia, emphasizing not only how bots produce order and enforce rules, but also how humans produce bots and negotiate rules around their operation. After giving a brief overview of how previous research into Wikipedia has tended to misconceptualize bots, I give a case study tracing the life of one such automated software agent and how it came to be integrated into Wikipedian society. HagermanBot, born 3 December 2006, now seems to be one of the most uncontroversial bots in Wikipedia, adding signatures to unsigned comments left by editors in designated discussion spaces. However, even a bot that enforced as minor of a guideline as signing one's comments generated intense debate, and the ensuing controversy reveals much detail about the dynamics between technological actors in social spaces.

Thinking about Bots: The 'Hidden' Order of Wikipedia

Bots have been especially neglected in existing social scientific research into the Wikipedian community. Research mentioning these computerized editors at all discusses them in one of several ways: first, as tools that researchers of Wikipedia can use for gathering sociological, behavioral, and organizational data;[6, 7] second, as information quality actors (usually vandalism reversers) whose edit identification algorithms are described and effects quantitatively measured;[8, 9] and third, as irrelevant entities that the software treats as humans, meaning that they must be excluded from data sets in order to get at the true contributors.[10, 11, 12] Researchers who have turned their attention to Wikipedia's technosocial infrastructure have discussed the significance of bots in and of themselves but make only tangential or speculative claims of their social roles.[13]

6. Felipe Ortega and Jesus Barahona Gonzalez, 'Quantitative Analysis of the Wikipedia Community of Users', *Proceedings of the 2007 International Symposium on Wikis and Open Collaboration*, Montreal, Canada: Association for Computing Machinery, 2007.
7. Moira Burke and Robert Kraut, 'Taking Up the Mop: Identifying Future Wikipedia Administrators', *Proceedings of the 2008 Conference on Human factors in Computing Systems* (CHI 2008), Florence, Italy: Association for Computing Machinery, 2008.
8. Dan Cosley, Dan Frankowski, Loren Terveen, and John Riedl, 'SuggestBot: Asing Intelligent Task Routing to Help People Find Work in Wikipedia', *Proceedings of the 12th international conference on Intelligent user interfaces*, Honolulu, Hawaii: Association for Computing Machinery, 2007.
9. Martin Potthast, Benno Stein, and Robert Gerling, 'Automatic Vandalism Detection in Wikipedia', in *Advances in Information Retrieval*, 2008, pp. 663-668.
10. Meiqun Hu, Ee-Peng Lim, Aixin Sun, Hady Wirawan Lauw, and Ba-Quy Vuong, 'Measuring Article Quality in Wikipedia: Models and Evaluation', in *Proceedings of the sixteenth ACM Conference on Information and Knowledge Management*, Lisbon, Portugal: Association for Computing Machinery, 2007.
11. Rodrigo Almeida, Barzan Mozafari, and Junghoo Cho, 'On the Evolution of Wikipedia', *Proceedings of the Second International Conference on Weblogs and Social Media*, Boulder, Colorado: Association for the Advancement of Artificial Intelligence, 2007.
12. Ofer Arazy, Wayne Morgan, and Raymond Patterson, 'Wisdom of the Crowds: Decentralized Knowledge Construction in Wikipedia', *16th Annual Workshop on Information Technologies & Systems*, 2006, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1025624.
13. Sabine Niederer and José van Dijck, 'Wisdom of the Crowd or Technicity of Content? Wikipedia as a Sociotechnical System', *New Media & Society* 12:8 (December 2010): 1368-1387.

Most research in the third category rejects bots either for no stated rationale at all, or based on findings made in 2005 and 2006 that, at their highest levels, they only comprise about 2 to 4 percent of all edits to the site,[14] or that they are largely involved in single-use tasks such as importing public domain material.[15] As such, they have been characterized as mere force-multipliers that do not change the kinds of work that editors perform. Stivia, et al., for example, conclude their discussion of bots by describing them as one tool among others – mere social artifacts (such as standards, templates, rules, and accounts of best practices) that are 'continually created to promote consistency in the content, structure, and presentation of articles'.[16] Their discussion of information quality, like most discussions of Wikipedia, is focused on the actions of human editors. In such a view, bots do not perform normative enforcement of standards. Rather, 'power editors' use bots – along with rules and templates – in the same way that a police officer uses a car, ticket book, legal code, and a radar gun to perform a more efficient and standardized form of normative enforcement. While the authors do reveal important aspects of Wikipedia's infrastructures, they are largely focused on unraveling the complicated standards and practices by which editors coordinate and negotiate. Research into Wikipedia's 'policy environment'[17] or various designated discussion spaces has operated on this same human-centered principle, demonstrating the complex and often 'bureaucratic'[18] procedures necessary for the project's functioning.

Most interesting is that bots are invisible not only in scholarship, but in Wikipedia as well; when a user account is flagged as a bot, all edits made by that user disappear from lists of recent changes so that editors do not review them. Operators of bots have also expressed frustration when their bots become naturalized, that is, when users assume that the bot's actions are features of the project's software instead of work performed by their diligent computerized workers. In general, bots tend to be taken for granted, and when they are discussed, they are not largely differentiated from human editors. As with any infrastructure, technological artifacts in Wikipedia have generally been passed over, even as they have been

14. Aniket Kittur, Bryan Pendleton, Bongwon Suh, and Todd Mytkowicz, 'Power of the Few vs. Wisdom of the Crowd: Wikipedia and the Rise of the Bourgeoisie', in *Proceedings of the 25th Annual ACM Conference on Human Factors in Computing Systems (CHI 2007)*, San Jose, California: Association for Computing Machinery, 2007.
15. Besiki Stvilia, Michael Twidale, Linda Smith, and Les Gasser, 'Assessing Information Quality of a Community-based Encyclopedia', *Proceedings of the 10th International Conference on Information Quality*, MIT: Cambridge Mass, 2005.
16. Besiki Stvilia, Michael B. Twidale, Linda C. Smith, and Les Gasser, 'Information Quality Work Organization in Wikipedia', *Journal of the American Society for Information Science and Technology* 59:6 (2008): 983-1001.
17. Ivan Beschastnikh, Travis Kriplean, and David McDonald, 'Wikipedian Self-Governance in Action: Motivating the Policy Lens', *Proceedings of the Third International Conference on Weblogs and Social Media*, Seattle, Washington: Association for the Advancement of Artificial Intelligence, 2008.
18. Brian Butler, Elisabeth Joyce, and Jacqueline Pike, 'Don't look now, but we've created a bureaucracy: the nature and roles of policies and rules in wikipedia', *Proceeding of the Twenty-Sixth Annual SIGCHI Conference on Human Factors in Computing Systems*, Association for Computing Machinery, Florence, Italy, 2008.

incorporated into everyday yet essential maintenance activities. While such a view may have been appropriate when it was first made – around 2004 and 2005 – significant developments in bot operation have resulted in a massive increase in the number and scope of bot edits. Despite this, recent research into the project largely passes over bots, operating under the assumption that the role of such technological actors has not changed.

Articulations of Delegation

Taking from sociologist of science and technology Bruno Latour's famous example, I argue that bots are not mere tools but are instead closer to the speed bumps he analyzes as social actors. While Latour, along with other actor-network theorists, defends a functional equivalence between human and non-human actors in their ability to engage in social activities, he stresses that the nature of the task being performed and the constellation of actors around it can be fundamentally changed when delegated to a technological actor instead of a human one. As Latour describes, a neighborhood that decides to punish speeding cars can delegate this responsibility to police officers or speed bumps, which seem to perform roughly equivalent actions. Yet compared to police officers, speed bumps are unceasing in their enforcement of this social norm, equally punishing reckless teenagers and on-call ambulances.

As Latour argues, the speed bump may appear to be 'nonnegotiable', [19] but we must not be fooled into thinking that we have 'abandoned meaningful human relations and abruptly entered a world of brute material relations'. [20] Instead, he insists that we view technologies as interdependent social actors and trace the network of associations in which they operate. Within this broader view, it may actually be easier to negotiate with speed bumps than a police officer, particularly if a city's public works department is more open to outside influence than the police department. As such, Latour rejects the distinction between matter and discourse when analyzing technologies in society, arguing that 'for the engineers, the speed bump is one *meaningful articulation* within a gamut of propositions'. [21] This methodology demands that we trace the ways in which actors articulate meaning, with the critical insight that both the actors and the articulations can (and indeed, must) be either human or non-human:

> In artifacts and technologies we do not find the efficiency and stubbornness of matter, imprinting chains of cause and effect onto malleable humans. The speed bump is ultimately *not* made of matter; it is full of engineers and chancellors and lawmakers, commingling their will and their story lines with those of gravel, concrete, paint, and standard calculations. [22]

Similar to Latour's speed bumps, Wikipedian bots are non-human actors who have been constructed by humans and delegated the highly social task of enforcing order in society. Bots also appear to be as non-negotiable as speed bumps, with their creators seemingly able to

19. Bruno Latour, *Pandora's Hope: Essays on the Reality of Science Studies*, Cambridge, Mass: Harvard University Press, 1999, p. 187.
20. Ibid.
21. Ibid.
22. Ibid, p. 190.

dominate the unsuspecting masses with their technical skills and literally remake Wikipedia in their own image. We must pay close attention to both the material and semiotic conditions in which bots emerge within the complex collective of editors, administrators, committees, discussions, procedures, policies, and shared understandings that make up the social world of Wikipedia. Following Latour, we gain a radically different understanding of bot operations if we trace out how a collective articulates itself, and particularly if we pay attention to the different ways they are 'commingling their will and their story lines' to other humans and non-humans. Bots, like infrastructures in general, [23] simultaneously produce and rely upon a particular vision of how the world is and ought to be, a regime of delegation that often sinks into the background – that is, until they do not perform as expected and generate intense controversies. In these moments of sociotechnical breakdown, these worldviews are articulated in both material and semiotic modes, and are rarely reconciled by either purely technological or discursive means.

These aspects of bots in Wikipedia are best illustrated by the story of HagermanBot, programmed with the seemingly uncontroversial task of appending signatures to comments in discussion spaces for those who had 'forgotten' to leave them. While the discursive norm to sign one's comments had been in place for some time – with human editors regularly, but not universally, leaving replacement signatures – a growing number of editors began to take issue with the bot's actions. This controversy illustrated that a particular kind of normative enforcement and correction, while acceptable when casually performed on a fraction of violations sometimes days or weeks after, became quite different when universally and immediately implemented by a bot. As Wikipedians debated the issue, it became clear that the issue concerned far more than whether people ought to sign their comments. High-level issues of rights and responsibilities began to emerge, and the compromise, which I argue has served as the basis for relations between human and robotic editors, was manifested at a technical level as an opt-out mechanism. However, this technical compromise was undergirded by the social understanding that 'bots ought to be better behaved than people', as one administrator expressed it – and both aspects of this resolution still undergird bot development in Wikipedia to this day.

Case Study: HagermanBot, A Problem and a Solution

Wikipedians conduct a significant amount of communication through the wiki, and designated discussion (or talk) spaces are, at the software level, functionally identical to the collaboratively-edited encyclopedia articles. To add a comment, a user edits the discussion page, appends a comment, and saves the new revision. Unlike the vast majority of online communication platforms, such as message boards, chat rooms, or email listservs, the wiki is not specifically designed for communication and thus functions quite differently. For example, malicious users can remove or edit someone else's comments just as easily as they can edit an encyclopedia article – although this is highly discouraged and moderated by the fact that the wiki platform saves a public history of each revision. In 2006, a user called ZeroOne

23. Susan Leigh Star, 'The Ethnography of Infrastructure', American Behavioral Scientist 43:3 (November 1999): 377-391.

noted another problem arising in discussion spaces: many Wikipedians made comments without leaving a signature, making it difficult to determine not only who made a certain statement, but also when it was made. A user could go through the revision histories to find this information, but it is tedious, especially in large discussions. However, as with many tedious tasks in Wikipedia, a few editors sensed that there was a need for someone to do this work – users like ZeroOne.

At 06:15 on 17 October 2006, user ZeroOne made his 4,072nd contribution to Wikipedia, editing the discussion page for the article on 'Sonic weaponry'. Instead of adding a comment of his own about the article, he merely appended the text {{unsigned|71.114.163.227|17 October 2006}} to the end of a comment made by another user about twenty-five minutes earlier [05:50]. When ZeroOne clicked the submit button, the wiki software transformed his answer into a pre-formatted message. Together, the edits of 71.114.163.227 and ZeroOne added the following text to the article's designated discussion page:

> Ultrasound as a weapon is being used against American citizens in Indiana. Any experts out there wish to make a study, look to Terre Haute, maybe its the communication towers, that is my guess. It is an open secret along with its corrupt mental health system. – Preceding unsigned comment added by 71.114.163.227 (talk · contribs) 17 October 2006

Two minutes later [06:17], ZeroOne performed the same task for an unsigned comment made by a registered user on the talk page for the 'Pseudocode' article – adding {{unsigned|Blueyoshi321|17 October 2006}}. About two hours later [08:40], he spent twenty minutes leaving {{unsigned}} messages on the end of eight comments, each made on a different discussion page. While ZeroOne could have manually added the text to issue the message, this process was made standard and swift because of templates, a software feature that enables users to issue pre-formed messages using shorthand codes.

While the existence of templates made ZeroOne's work somewhat automated, this editor felt that it could be made even more so with a bot. ZeroOne soon posted this suggestion in a discussion space dedicated to requests for new bots. Over the next few weeks, a few users mused about its technical feasibility and potential effects without making any concrete decisions on the matter. The discussion stagnated after about a dozen comments and was automatically moved into an archive by a bot named Werdnabot on 16 November 2006, after having been on the discussion page for fourteen days without a new comment. Yet in the next month, another user named Hagerman was hard at work realizing ZeroOne's vision of a bot that would monitor talk pages for unsigned comments and append the {{unsigned}} template message without the need for human intervention, although it is unclear if Hagerman knew of ZeroOne's request. Like ZeroOne, Hagerman had used the template to sign many unsigned comments, although many of these were his own comments instead of ones left by others.

On 30 November 2006, having finished programming the bot, Hagerman registered a new user account for HagermanBot and wrote up a proposal the next day. In line with Wikipedia's rules on bot operation, Hagerman submitted his proposal to the members of the Bot Approval Group (BAG), an ad-hoc committee tasked with reviewing bot proposals and ensuring that bots are operated in accordance with Wikipedia's policies. Tawker, the operator of AntiVandalBot and a member of the BAG, asked Hagerman for a proof of concept and asked a technical question about how the bot was gathering data. Hagerman provided this information, and Tawker approved the bot about 24 hours later, with no other editors taking part in the discussion. On 00:06 on 3 December, it began operation, automatically appending specialized {{unsigned}} messages to every comment that it identified as lacking a signature. The first day, 790 comments were autosigned, and HagermanBot made slightly over 5000 edits over the next five days. By the end of December 2006, HagermanBot had become one of the most prolific users to edit Wikipedia in that month, outpacing all other humans and almost all other bots.

A Problem with the Solution

There were a few problems with the bot's identification algorithms, making it malfunction in certain areas: programming errors that Hagerman promptly fixed. However, some users were annoyed with the bot's normal functioning, complaining that it instantly signed their comments instead of giving them time to sign their own comments after the fact. For these editors, HagermanBot's message was 'embarrassing', as one editor stated, making them appear as if they had blatantly violated the Signatures guideline. Others did not want bots editing messages other users left for them on their own user talk pages as a matter of principle, and an equally vocal group did not want the bots adding signatures to their own comments.

While Hagerman placated those who did not want the bot editing comments left for them, the issue raised by the other group of objecting editors was more complicated. These users were, for various reasons, firmly opposed to having the bot transform their own comments. One user in particular, Sensemaker, did not follow what was claimed to be the generally-accepted practice of using four tildes (~~~~) to automatically attach a linked signature and timestamp, instead manually adding '-Sensemaker' to comments. HagermanBot did not recognize this as a valid signature and would therefore add the {{unsigned}} template message to the end, which Sensemaker would usually remove. After this occurred about a dozen times in the first few days of HagermanBot's existence, Sensemaker left a message on Hagerman's user talk page, writing:

> HangermanBot keeps adding my signature when I have not signed with the normal four tilde signs. I usually just sign by typing my username and I prefer it that way. However, this Bot keeps appearing and adding another signature. I find that annoying. How do I make it stop? -Sensemaker

Like with the previous request, Hagerman initially responded quickly, agreeing to exclude Sensemaker within ten minutes of his message and altering the bot's code fifteen minutes later. However, Hagerman soon reversed his position on the matter after another editor said that granting Sensemaker's request for exclusion would go against the purpose of the bot, emphasizing the importance of timestamps in discussion pages. Sensemaker's manual signature did not make it easy for a user to see when each comment was made, which Fyslee, a vocal supporter of the bot, argued was counterproductive to the role of discussion spaces. Hagerman struck the earlier comments and recompiled the bot to automatically sign Sense-

maker's comments, again calling Fyslee's remarks 'Very insightful!' As may be expected, Sensemaker expressed frustration at Hagerman's reversal and Fyslee's comment – in an unsigned comment which was promptly 'corrected' by HagermanBot.

Yet for Sensemaker and other editors, it was not clear 'who gave you [Hagerman] the right to do this', as one anonymous user who contested HagermanBot exclaimed. Hagerman responded to such rights-based arguments by linking to his bot proposal, which had been approved by the Bot Approval Group – clearly able to enroll this committee as an ally in defense of the bot. In fact, it seemed that Hagerman had a strong set of allies: a growing number of enthusiastic supporters, the BAG, the Signatures guideline, ideals of openness and transparency, visions of an ideal discursive space, the {{unsigned}} template, and a belief that signing unsigned comments was a routine act that had long been performed by humans. Yet for some reason, a growing number of editors objected to this typical, uncontroversial practice when HagermanBot performed it.

Many users who had previously left their comments unsigned or signed with non-standard signatures began to make themselves visible, showing up at Hagerman's user talk page and other spaces to contest what they portrayed as an unfair imposition of what they believed ought to be optional guidelines. The anti-HagermanBot group was diverse in their stated rationales and suggested solutions, but all objected to the bot's operation on some level. Some objectors staunchly opposed any user signing their comments, bot or human, and took issue with the injunction to sign one's comments using the four tilde mechanism – Sensemaker was one of these editors, although others did not want to use a signature at all. Another group did not want to see a bot universally enforcing such a norm, independent of their stance on the necessity of signatures:

> I don't really like this bot editing people's messages on other people's talk pages without either of their consent or even knowledge. I think it's a great concept, but it should be an opt-in thing (instead of opt-out), where people specify with a template on their userpage if they want it, like Werdnabot, it shouldn't just do it to everyone. Just my two cents. --Rory096 01:36, 11 December 2006 (UTC)

Having failed to convince Hagerman, Sensemaker shifted venues and brought the issue to the members of the Bot Approval Group. Sensemaker asked the BAG to require an opt-out mechanism, lamenting that Hagerman could 'force something upon people who expressly ask to be excluded'. Many more users who had previously left their comments unsigned or signed with non-standard signatures also began to make themselves visible.

In the ensuing discussion – which was comprised of BAG members, administrators, and other Wikipedians – it became clear that this was not simply a debate about signatures and timestamps. The debate had become a full-blown controversy about the morality of delegating social tasks to technologies, and it seemed that most of the participants were aware that they had entered a new territory. There had been debates about bots in Wikipedia before, but most were not about bots *per se*, instead revolving around whether a particular task – which just happened to be performed by a bot – was a good idea or not. If there was a consensus

for performing the task, the bot was approved and began operating; if there was no consensus, the bot was rejected, or suspended if it had already been operating. In the case of HagermanBot, critics increasingly began to claim that there was something fundamentally different between humans sporadically correcting violations of a generally-accepted norm and a bot relentlessly ensuring total compliance with its interpretation of this norm. For them, the burden was on Hagerman and his allies to reach a consensus in favor of the current implementation of the bot if they wanted to keep it operating.

The bot's supporters rejected this, claiming that HagermanBot was only acting in line with a well-established and agreed-upon understanding that the community had reached regarding the importance of signatures in discussion spaces. For them, the burden was on the critics to reach a consensus to amend the Signatures guideline if they wanted to stop the bot from operating. Hagerman portrayed the two supported opt-out systems (!NOSIGN! and <!--Disable HagermanBot-->) not as ways for users to decide for themselves if they ought to abide by the Signatures guideline, but rather to keep the bot from signing particular contributions to talk pages that are not actually comments and therefore, according to the guideline, do not need to be signed. These would include the various informational banners routinely placed on talk pages to let editors know, for example, that the article is being proposed for deletion or that it will be featured on the main page the next week. From a design standpoint, HagermanBot thus assumed total editorial compliance with the Signatures guideline: the two opt-out features were to ensure more conformity, not less, by allowing users to tell the bot when a Signature would be unwarranted according to the guideline. Users who were opposed to the Signatures guideline in general could use the tedious feature to prevent the bot from enforcing the guideline when they made comments, but Hagerman begged them not to opt-out in this manner.

HagermanBot's allies were thus able specifically to articulate a shared vision of how discussion spaces were and ought to be, placing strong moral emphasis on the role of signatures and timestamps in maintaining discursive order and furthering the ideals of openness and verifiability. Like all approved bots that came before it, HagermanBot was acting to realize a community-sanctioned vision of what Wikipedia was and how it ought to be. The Signatures guideline was clear, stating that users were not to be punished for failing to sign their comments, but that all signatures should be signed, given that signatures were essential to the smooth operation of Wikipedia as an open, discussion-based community.

Yet this proved inadequate to settle the controversy, because those opposed to HagermanBot were articulating a different view of Wikipedia – one that did not directly contest the claims made regarding the importance of signatures, discussion pages, and communicative conventions. Instead, those like Sensemaker advanced an opposing view of how users, and especially bot operators, ought to act toward each other in Wikipedia, a view that drew heavily on notions of mutual respect:

> Concerning your emphasis on the advantages of the bot I am sure that it might be somewhat convenient for you or others to use this bot to sign everything I write. However, I have now specifically requested to not have it implemented against my will. I would not

> force something upon you that you expressly said you did not want for my convenience. Now I humbly request that the same basic courtesy be extended to me. -Sensemaker

For HagermanBot's allies, these objections were categorically interpreted as irrational, malicious, or indicative of what Rich Farmbrough called 'botophobia'. While this seems to be a pejorative description that would strengthen Hagerman's position, it restructured the controversy and allowed it to be settled in Sensemaker's favor. In entering the debate, Farmbrough argued that while Hagerman and his allies were entirely correct in their interpretation of the Signatures guideline, Hagerman should still allow an opt-out system:

> On the one hand, you can sign your edits (or not) how you like, on the other it is quite acceptable for another user to add either the userid, time or both to a talk edit which doesn't conatin them. Nonetheless it might be worth allowing users to opt out of an automatic system - with an opt out list on a WP page (the technical details will be obvious to you)- after all everything is in history. This is part of the 'bots are better behaved than people' mentality whihc is needed to avoid botophobia. *Rich Farmbrough*, 18:22 6 December 2006 (GMT).

Such a mediation between incommensurable views was sufficient to resolve the compromise. Declarations of either side's entitlements, largely articulated in the language of positive rights, were displaced by the notion of responsibility, good behavior, and mutual respect. What it meant to be a good bot operator now included maintaining good relations with editors who objected to bots or else risk a wave of anti-bot sentiment. The next day Hagerman agreed, and the issue was settled.

An Unexpected Ally

While the opt-out list may seem like a concession made by Hagerman, it proved to be one of his strongest allies in defending HagermanBot from detractors, who were arriving in numbers to his user talk page and other spaces, even after the Sensemaker/Hagerman dispute had been settled. Most users left value-neutral bug reports or positive expressions of gratitude, but a small but steadily-increasing number of editors continued to complain about the bot's automatic signing of their comments. The arguments made against HagermanBot were diverse in their rationales, ranging from complaints based on annoyance to accusations that the bot violated long-established rights of editors in Wikipedia. As one editor asked:

> *Who gave you the right to do this?*
> It is not mandatory that we sign, AFAIK. Instead of concocting this silly hack, why not get the official policy changed? I suppose you effectively did that by getting permission to run your bot on WP. How did you manage that anyway? (I won't bother with typing the fourtildas).
>
> > It isn't a policy, however, it is a guideline. You can view its approval at Wikipedia:Bots/Requests for approval/HagermanBot. Feel free to opt out if you don't want to use it. Best, Hagerman(talk) 02:29, 5 January 2007 (UTC)

As seen in Hagerman's reply to this objection, a few human allies were helpful in rebutting the objections made against his bot: the members of the Bot Approval Group, who had reviewed and approved the bot according to established protocols. The Signatures guideline – including the distinction between guidelines and policies – was also invoked to justify HagermanBot's actions, as shown in both examples. It would seem that these actors, who were generally taken to draw their legitimacy from a broad, project-wide consensus, would have been the most powerful allies that Hagerman could deploy in support of HagermanBot's actions and its vision of how discussion spaces in Wikipedia ought to operate. However, a much stronger ally proved to be the opt-out list through which angry editors could be made to lose interest in the debate altogether. It is this last actor that was most widely used by Hagerman and his human allies, who began to routinely use the opt-out list to respond to a wide array of objections made against the bot.

The strength of the opt-out list was its flexibility in rebutting the objections from two kinds of arguments: first, the largely under-articulated claims that the bot was annoying or troublesome to them; and second, the ideological or rights-based arguments that the bot was acting against fundamental principles of the project's normative structure. The first argument was easy to rebut, given that the opt-out list completely responded to their more practical concerns. In contrast, those making the second kind of argument called forth juridico-political concepts of rights, autonomy, and freedom. Yet the same opt-out list could be invoked in HagermanBot's defense against these actors, as it foreclosed their individual claims that the bot was violating their editorial rights. While objectors would have preferred that the bot use an opt-in list to preemptively ensure the rights of all editors, the opt-out list allowed HagermanBot to be characterized as a supremely respectful entity that was, as the new philosophy of bot building held, 'better behaved than people'.

Exclusion Compliance

HagermanBot's two new features – the opt-out list and the <!--Disable HagermanBot--> tag – soon became regular players in Wikipedia, especially among the bot development community. Rich Farmbrough saw the value of these non-human actors who helped settle the HagermanBot controversy and wanted to extend such functionality to other bots; however, its idiosyncratic mechanisms were unwieldy. About a week after HagermanBot implemented the opt-out list, he was involved in a discussion about a proposed bot named PocKleanBot, which was described by its operator PockingtonDan as a 'nag-bot' that would leave messages for users on their talk pages if articles they had edited were flagged for cleanup. It was unleashed without approval by the BAG and was promptly banned; in the ensuing discussion, many editors and administrators called for the 'spam bot' to be opt-in only. However, PockingtonDan argued that the bot would not be useful without sending unsolicited messages. In response, Rich Farmbrough suggested the same opt-out solution that had settled the HagermanBot controversy. However, seeing a need for extending this functionality to all possible bots, he created a template called {{nobots}}, which was to perform the same function as HagermanBot's exclusion tag, except apply to all compliant bots.

Most templates contain a pre-written message, but the message attached to the nobots template was blank, thus it would not change the page for viewers but could be added

by editors and detected by bots that downloaded its source code. If a user placed the text {{nobots}} on their user page, any bot that supported the standard would not edit that page in any fashion. A user could also allow only specific bots access by writing, for example, {{nobotslallow=HagermanBot}}. In short, {{nobots}} was a sign that users could place on pages to signal to certain bots that they were either welcome or not welcome to edit on that page, with no actual technical ability to restrict non-compliant bots from editing. A bot would have to be built such that it looked for this template and respected it; in the case of PockingtonBot, incorporating this feature was required by the BAG in order to approve the bot.

While the controversy of PocKleanBot was settled by PockingtonDan bowing to the pressure of the BAG and removing it from operation, the template fared much better in the bot development community. Along with Farmbrough, Hagerman was one of the key actors in developing the initial specification for {{nobots}}, along with Ram-Man, a member of the Bot Approval Group. On 18 December, Hagerman announced that HagermanBot was now 'nobots aware' on the template's talk page, the first recorded bot to become what would later be called exclusion compliant – a term that Hagerman crafted. After some confusion with semantics, the template was copied to {{bots}} and remained relatively stable for the next few months as it gained acceptance and increasing use among bots. After HagermanBot, the next bot to be made exclusion-compliant was AzaBot, created to leave user talk page messages for users in a certain specialized discussion after an outcome was reached. AzaToth submitted the proposal to the BAG on 20 December, which was approved by Ram-Man that same day. In his decision, Ram-Man asked AzaToth to make the bot comply with {{bots}}, implementing an opt-out mechanism to 'respect their wishes'. Ram-Man also asked for AzaToth to share the source code that made this mechanism possible.

AzaToth quickly wrote a seventy-five line function in the programming language Python that incorporated compliance with this new standard, publishing it to the bot development community. This soon became fine-tuned and reduced to a four-line snippet of code, ported to five different programming languages such that nearly any bot operator could copy and paste it into their bot's code to achieve exclusion compliance. As members of the bot development community created software frameworks to facilitate bot programming, this code was eventually incorporated and enabled by default. Through the efforts of those in the BAG and the bot operator community – especially Farmborough, Hagerman, and Ram-Man – exclusion compliance became a requirement for many bots, implemented first to settle existing controversies and eventually becoming a pre-emptive mechanism for inhibiting conflict between bot editors and the community. While it was never mandatory, many bot operators had to argue why their bot should not be required to implement such features upon review by the BAG, and failure to implement exclusion compliance or opt-out lists soon became nonnegotiable grounds for denying some bot requests.

Debates about newsletter delivery bots – which exploded in popularity as the various editorial subcommunities organized in 2007 – became a site of articulation regarding this issue. Many bots were proposed that would automatically deliver a group's newsletter or targeted message to all its members. When the first of these bots began operating, conflicts initially emerged between editors who felt they had received unsolicted spam and bot operators who thought they

were providing a valuable service. Opt-out mechanisms were used to settle these disputes, although in many cases the bots already incorporated such features but did not make them visible to recipients. In response, a set of informal criteria was soon formed by members of the BAG to ease these proposals. One requirement was implementation of some opt-out mechanism, either via exclusion compliance or an opt-out list; another was including information about opting-out in each newsletter delivery. Such requirements settled many controversies between editors and bot operators, and soon, bot approval policies were updated to officially indicate that no newsletter bots would be approved by the BAG until they were proven to sufficiently respect the wishes of editors who did not want interference from such bots.

Conclusion

The case of HagermanBot shows us how a weak but pre-existing social norm was controversially reified into a technological actor. Yet there is also a more nuanced dynamic between human and non-humans at play, as this controversy regarding the delegation of work to bots was settled by constructing a new set of technical and social artifacts – artifacts that the Wikipedian bot development community used in future debates. HagermanBot complicates accounts of the project's order that rely almost exclusively on social artifacts, showing that these non-human editors have a significant effect on how the project's norms are enforced. While much human work is performed in settling controversies, the bot development process can be a moment of articulation and contestation for what were previously taken to be uncontroversial expectations.

At the most basic level, there are many organizational restrictions on bot development, such as policies, guidelines, and a committee that must approve all bots before operation. Yet bots are also limited by their own power; in universally and uniformly acting to realize a particular normatively-charged vision of how articles ought to look or how editors ought to act, they often act rashly and make certain unstated assumptions quite visible. With HagermanBot, instantly signing the unsigned comments left by every editor brought to light differences in how two previously invisible groups interpreted a vague guideline. This is because, like Bruno Latour's speed bumps, bots are ruthlessly moral; just as a speed bump will punish both reckless drivers and ambulances in its quest to maintain order on roads, so will bots often take a particular view of Wikipedia to its logical extreme. This makes it difficult to think of bot operators as power users who silently deploy bots to further increase their power in the community.

The case of HagermanBot further illustrates that the negotiation of a bot's source code is not a purely normative affair in which participants discuss the kind of editorial environment that is to be enforced by such an actor. Following Latour, the HagermanBot controversy shows that these articulations can be both material and semiotic, that is, with intentions being expressed both in technologies and discourse, and such meanings are mutually interdependent. HagermanBot's opt-out mechanisms, for example, experienced a dramatic reversal, having first been articulated to ensure that the bot only signed edits that were actually comments – not a way for rogue editors to abandon the guideline at their whim. Yet within a new understanding of how bots and bot operators ought to act within the Wikipedian community, this translated into a way of showing respect for dissenters, with a new opt-out mechanism created to stave off 'botophobia'.

What is most notable about the HagermanBot controversy is that it marks a turning point in the understanding of what kinds of worldviews bots work to realize. Prior to HagermanBot, Wikipedian bot operation could be said to take place in a weakly technologically determinist mode, in which bots reified a vision of how the world of Wikipedia ought to be, once that vision was agreed upon by the community. Post-HagermanBot and with the rise of exclusion compliance, certain technical features of bots articulated a vision of how bots and their operators ought to relate to the community. In fact, this material-semiotic chain of meaning repeatedly oscillated between technical and discursive articulations. This persistent notion that 'bots are better behaved than people', which Hagerman articulated in the form of the opt-out mechanism, became standardized in a semiotic marker: Rich Farmborough's {{bots}} template. Compliance with this template was articulated in AzaToth's software code, which was translated into a number of programming languages such that any bot operator could easily make their bot articulate this notion of respect. Passing back into the semiotic, including this code gained the moniker of 'exclusion compliant', and this condition became regularly incorporated into BAG bot approval discussions.

In all, bots defy simple single-sided categorizations: they are both editors and software, social and technical, discursive and material, as well as assembled and autonomous. One-sided determinisms and constructionisms, while tempting, are insufficient to fully explain the complicated ways in which these bots have become vital members of the Wikipedian community. In understanding the relationship that bots have to the world around them, we must trace how bots come to articulate and be articulated within a heterogeneous assemblage. Only then can we realize that the question of who or what is in control of Wikipedia is far less interesting than the question of how control operates across a diverse and multi-faceted sociotechnical environment.

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THE POLITICS OF FORKING PATHS

NATHANIEL TKACZ

The 7th of February, 2002, was a memorable day for the Spanish Wikipedia. Prominent community member Edgar Enyedy posted a brief message to the international Wikipedia discussion list, noting that the Spanish Wikipedia had reached 1,000 article pages.[1] The achievement was met with congratulations from English Wikipedia co-founder Larry Sanger, general back-patting among the Spanish community members, and invitations to share insights with other language Wikipedias on how they had achieved such rapid growth. The Spanish Wikipedia, it seemed, was a shining example among the host of new Wikipedias that had sprung up shortly after their English counterpart.[2]

Less than a week later another exchange began between Enyedy and Sanger, this time with a very different tone. In part of a longer post announcing the end of his paid employment by Wales' company Bomis, Sanger mentioned in passing that 'Bomis might well start selling ads on Wikipedia sometime within the next few months'.[3] Sanger's hope was that selling ads would generate enough revenue for him to return to his paid editorial position at Bomis. To this Enyedy replied:

> I've read the above and I'm still astonished. Nobody is going to make even a simple buck placing ads on my work, which is clearly intended for community, moreover, I release my work in terms of free, both word senses, I and [sic] want to remain that way. Nobody is going to use my efforts to pay wages and or maintain severs.
> And I'm not the only one who feels this way.
> I've left the project. [...]
> Good luck with your wikiPAIDia
> Edgar Enyedy
> Spanish Wikipedia[4]

1. The archives of this list are available at http://osdir.com/ml/science.linguistics.wikipedia.international/.
2. The English Wikipedia was launched on 15 January 2001, and the Spanish version four months later on 1 May 2001. See Wikipedia contributors, 'Spanish Wikipedia', http://en.wikipedia.org/w/index.php?title=Spanish_Wikipedia&oldid=409905416, accessed 13 February 2011.
3. Larry Sanger, 'Announcement about my involvement in Wikipedia and Nupedia', 13 February 2002, http://osdir.com/ml/science.linguistics.wikipedia.international.
4. Edgar Enyedy, 'Good luck with your wikiPAIDia', 17 February 2002, http://osdir.com/ml/science.linguistics.wikipedia.international.

On February 26th, two weeks after this second exchange, the majority of the Spanish contingent abandoned the Spanish Wikipedia. They transferred copies of the thousand-odd articles to a different server and began work on a new encyclopedia, the Enciclopedia Libre Universal en Español (EL).[5]

The details of what took place between Sanger's initial remarks about advertising, the seeming death of the Spanish Wikipedia, and the birth of the EL are the main focus of this essay. In particular, I examine how this event is framed within a newly politicized discourse of 'forking', which refers to splitting a project to create two separate entities. I begin with a critical examination of the function of forking in relation to the governance of open projects.[6] Drawing on concepts from Matthew Kirshenbaum, I try to generate ambiguities in this notion and use these to build an alternative approach to events described in the language of forking. This revised approach attends to forking less as a concept of governance and more as an empirical instance of conflict and uncertainty. Forking represents a unique opportunity to make visible the messiness and modalities of force in these projects. It is a rare moment when the fundamental organizing principles of a project are put to the test and when possibly irreconcilable differences are foregrounded over values held in common. A consideration of forking also brings into view a series of questions about the ontological boundaries of open projects, questions that problematize the very possibility of forking and reveal the 'making invisible' of certain features of open projects necessary for the political discourse of forking to be preserved.

Forking

The origins of forking lie with computation. The term originally referred to an operating system process where the output of the process is a functional duplication of the process itself, thereby creating two separate but virtually identical processes. The translation of this technical definition into software and other content projects generally extends only to open projects. That is, because forking involves extensive and direct duplication, anything under the regime of copyright cannot be forked. Indeed, from an economic perspective, forking directly contravenes the law of scarcity and seemingly the very basis of value under capitalism. This also means that forking is generally not considered applicable to 'material things', such as hardware and traditional institutions, that satisfy the scarcity criteria.

As I hope to show, exactly what constitutes a fork is not a settled question. Most of the current literature, however, holds several things in common. Forking primarily involves a split, the duplication of source code or content and the creation of a new project along with the original. The two projects proceed in different directions, but, at least initially, both draw on the original code. As the two projects develop in different directions, at some point it becomes

5. This exchange is also covered briefly in Andrew Lih, *The Wikipedia Revolution*, New York: Hyperion, 2009, pp. 136-138.
6. I define open projects as an umbrella term to include the array of software projects that adopt various 'copyleft' or 'commons-based' licenses (commonly referred to as FLOSS projects), as well as those that adopt the spirit and legal infrastructure of FLOSS but which translate these outside of purely software environments.

impossible to exchange code between the projects.[7] Several authors also stress the competitive nature of the fork as well as the *intention* of the forkers to compete, both in terms of the 'potential developer community' and the actual output itself.[8] As Chris Kelty puts it, a fork generates 'two bodies of code that [do] the same thing, competing with each other to become the standard'.[9] While the origin of the desire to fork might in fact lie in the differing opinions over what the project should do (i.e., the two bodies of code won't do the same thing), Kelty is right to stress that in most cases each seeks to become the dominant project.

As forking extended beyond its strictly computational definition to include entire projects and their contributors, it has taken on decidedly political connotations.[10] A discourse on the political function of forking has sprung up, placing it in conversation with a long tradition of leave-oriented political action, such as revolution (in both classical liberal and Marxist currents) and more recent notions of exodus,[11] escape,[12] and exit.[13] Similar to these notions, forking is alternatively (and sometimes simultaneously) situated as a technique of the subjugated or as a mechanism ensuring the legitimacy of the current (non-forked) order, although, as I will show, the informational origins of forking make it quite distinct from its historical and contemporary counterparts.

Before I begin an interrogation of forking, I want to briefly point out two explicitly political qualities it is continually ascribed. The first, what I shall call the *constitutive* nature of forking, refers explicitly to the ontology of open projects. The constitutive nature of forking deems it so crucial to open projects that a project cannot be considered open without it.

7. See for example: Andrew St. Laurent, *Understanding Open Source and Free Software Licensing*, Cambridge, MA: O'Reilly Media, 2004, p. 171; Chris Kelty, *Two Bits: The Cultural Significant of Free Software*, Durham: Duke University Press, 2008, p. 138; MeatballWiki contributors, 'RightToFork', *MeatballWiki*, 10 February 2011, http://meatballwiki.org/wiki/RightToFork; David Wheeler, 'Why Open Source Software / Free Software (OSS/FS, FLOSS, or FOSS)? Look at the Numbers!', 2007, http://www.dwheeler.com/oss_fs_why.html; Joseph Reagle, *Good Faith Collaboration: The Culture of Wikipedia*, Cambridge, MA: The MIT Press, 2010, p. 82. See also the discussion thread '10 interesting open source software forks and why they happened (Pingdom)', *LWN.net*, 11 September 2008, http://lwn.net/Articles/298015/.
8. Eric Raymond, 'Homesteading the Noosphere', 2002, http://www.catb.org/~esr/writings/cathedral-bazaar/homesteading/ar01s03.html; Wheeler.
9. Kelty, p. 138.
10. See for example: Terry Hancock, 'OpenOffice.org is Dead, Long Live LibreOffice – or, The Freedom to Fork', *Free Software Magazine*, 5 September 2010, http://www.freesoftwaremagazine.com/columns/openoffice_org_dead_long_live_libreoffice.
11. Paolo Virno, 'Virtuosity and Revolution: The Political Theory of Exodus', in Paolo Virno and Michael Hardt (eds), *Radical Thought in Italy: A Potential Politics*, Minneapolos, MN: University of Minnesota Press, pp. 189-212; Michael Walzer, *Exodus and Revolution*, United States of America: Basic Books, 1985.
12. Dimitris Papadopoulos, Niamh Stephenson and Vassilis Tsianos, *Escape Routes: Control and Subversion in the 21st Century*, London: Pluto Press, 2008.
13. Albert Hirschman, *Exit, Voice and Loyalty: Responses to Declines in Firms, Organisations, and States*, Cambridge, MA: Harvard University Press, 1970.

For example, Joseph Reagle describes forking as a 'fundamental characteristic of FOSS'[14] and argues 'that a test of an open community is if a constituency that is dissatisfied with results of such a discussion can fork (copy and relocate) the work elsewhere'.[15] Likewise, Steven Weber writes, 'The core freedom in free software is precisely and explicitly the right to fork'.[16] Other authors similarly describe forking as an 'indispensible ingredient',[17] 'essential aspect',[18] or as 'inherent in the fundamental software freedoms common to all open source software'.[19]

The second quality follows directly from the first. I call this quality, which has less to do with the actual process of forking and more to do with the implications of the ever-present *possibility* of forking, the *safety net*: anybody who no longer agrees with the direction of the project can, as a last resort, simply leave and start a fork. What is most important about the safety net, however, is the perceived effect it has on the governance of all open projects. For example, Karl Fogel writes that forking is 'the reason there are no true dictators in free software projects' and its existence 'implies consensus'.[20] In Steven Weber's rights-based language, 'by creating the right to fork, the open source process transfers a very important source of power from the leader to the followers' and 'comes as close to achieving practical meritocracy as is likely possible'.[21] In a similar fashion, P2P visionary Michel Bauwens writes that forking 'de-monopolizes power' and simultaneously maximizes the freedom of individual participants.[22] At its most general level, forking as safety net is a mechanism of legitimization. Its very existence demands that whatever mode of rule or governance is adopted by a project, this mode must in the last instance be perceived by all members of the project as legitimate or else they will leave. Combined, the constitutive and safety net qualities of forking are what prevent or, if necessary, resolve conflict in open projects.

Like other forms of political exit, forking is usually seen as a last resort. But unlike its historical counterparts, forking takes place in a context of perceived abundance, heavily influenced by the logic of software from which it emerged. What distinguishes forking from other forms of political exit is its supposed lossless quality. Revolutions have winners and losers and fight over the same resources. Forms of political exit require leaving both the

14. Joseph Reagle, *Good Faith Collaboration: The Culture of Wikipedia*, Cambridge, MA: The MIT Press, 2010, p. 82.
15. Joseph Reagle, *In Good Faith: Wikipedia Collaboration and The Pursuit of The Universal Encyclopedia*, PhD thesis, New York Univeristy, 2008, p.75.
16. Steven Weber, *The Success of Open Source*, Cambridge, MA: Harvard University Press, 2004, p. 159.
17. Karl Fogel, *Producing Open Source Software: How to Run a Successful Free Software Project*, Sebastopol, CA: O'Reilly, 2005, p. 88.
18. Christian Siefkes, *From Exchange to Contributions: Generalizing Peer Production into the Physical World*, Berlin, Siefkes-Verlag, 2008, p. 121.
19. MeatballWiki contributors, 'RightToFork', *MeatballWiki*.
20. Fogel, p. 88.
21. Weber, p. 181.
22. Michel Bauwens, 'P2P and Human Evolution: Peer to Peer as the Premise of a New Mode of Civilization', 2005, p.36, http://www.altruists.org/f870.

bad and the good behind. But when a project is forked, seemingly both parties can still enjoy in the spoils. This logic finds its most exaggerated expression in an analogy by Karl Fogel, who writes: 'Imagine a king whose subjects could copy his entire kingdom at any time and move to the copy as they see fit'. [23] And while Eric Raymond and others have pointed out that loss does exist (with regards to the developer community, for example), such loss is generally perceived only in terms of efficiency, because forking creates two similar projects but with half the resources. [24]

Generating Ambiguities: Two Perspectives on Forking

Is it actually possible to fork? This question cuts to the heart of open politics. Proponents of open politics not only answer a resounding 'yes', but can undoubtedly rattle off a list of prior successful forks: compilers, web browsers, content management systems, productivity suites, operating systems, content projects, and even entire movements. [25] I suggest, however, that exactly what constitutes a fork is more complicated than what has thus far been acknowledged.

I noted earlier that current understandings of forking derive from a technical process of an operating system, where the output of the process is a functional duplicate of the original process. Although these processes appear 'functionally identical', they differ in small and seemingly insignificant ways. The processes are temporally and spatially different, for example (created at different times and occupying different locations on a hard drive), but these are part of a whole set of what I call, borrowing from Matthew Kirschenbaum, *forensic* differences. Kirshenbaum distinguishes between two ways of approaching digital inscription and storage. The first, 'forensic materiality', 'rests upon the principle of individualization (basic to modern forensic science and criminalistics), the idea that no two things in the physical world are ever exactly alike'. [26] He continues: 'If we are able to look closely enough, in conjunction with appropriate instrumentation, we will see that this extends even to the micron-sized residue of digital inscription, where individual bit representations deposit discreet legible trails that can be seen with the aid of a technique known as magnetic force microscopy'. [27] However, forensic materiality is not just about identifying trace differences in the inscription of code. Rather it invites us to attend to all forms of difference – from all but undetectable variations in the process of magnetic inscription to different labor practices, methods of production, storage, different kinds of technological waste that result from these practices, and so on – that could be properly understood as

23. Fogel, p. 68.
24. Raymond.
25. See '10 interesting open source software forks and why they happened', *Royal Pingdom*, 11 September, 2008, http://royal.pingdom.com/2008/09/11/10-interesting-open-source-software-forks-and-why-they-happened/. Regarding the forking of entire movements, see Kelty, p. 99.
26. Matthew Kirschenbaum, *Mechanisms: New Media and the Forensic Imagination*, Cambridge, MA: MIT Press, 2008, p.10.
27. Ibid.

ecological difference. Paraphrasing an observation made by Bruno Latour, the forensic method never sees information, only transformation. [28]

The second approach, 'formal materiality', refers to the symbolic and functional consistencies that exist or perhaps 'persist' across forensic difference: 'Whereas forensic materiality rests upon the potential for individualization inherent in matter, a digital environment is an abstract projection supported and sustained by its capacity to propagate the illusion (or call it a working model) of *immaterial* behavior: identification without ambiguity, transmission without loss, repetition without originality'. [29] Formal materiality, we might say, sees information and habitually backgrounds its transformations. Importantly, forensic differences constantly work against the realization of formal consistencies. Formal materiality is never a given; it must be achieved. Kirschenbaum notes, for example, how all 'forms of modern digital technology incorporate hyper-redundant error-checking routines that serve to sustain the illusion of immateriality by detecting error and correcting it, reviving the quality of the signal'. [30]

While programmers undoubtedly know more about the forensic aspects of digital objects than most, their practice generally takes place within a 'formal' paradigm – at the level of code, for example. As a concept that emerges from the practice of programmers, in both its strictly technical and extended sense, forking is underpinned by a formal understanding of digital media; it is about duplication and the creation of equivalences. By extension, political investment in forking is also predicated on the ability to maintain this illusion of equivalence in the face of differences at the forensic level. It is clear, though, that as the term 'forking' is attached to more-than-technical processes, the gap between the formal and the forensic, as well as what is at stake in this gap, is radically altered. For example, it is no longer a matter of ensuring patterns of data are replicated with the aid of 'hyper-redundant error-checking routines', but instead requires, along with these technical accomplishments, establishing a whole ensemble of functional consistencies and the general perception that whatever cannot be forked at the formal level is not politically significant. In other words, in order to satisfy its own demands, the political discourse of forking must limit its purview to only those things that can achieve formal equivalence or can otherwise be deemed inessential.

What enables this perceived equivalence, this lossless quality of forking, resonates with what Wendy Chun describes as a 'logic of "sourcery"' found in recent attempts to grasp new media's essence, by singling out what seems common to all: software. [31] For Chun,

28. Bruno Latour, 'There Is No Information, Only Transformation', in Geert Lovink (ed), *Uncanny Networks: Dialogues with the Virtual Intelligentsia*, Cambridge, MA: The MIT Press, 2002, pp. 154-161.
29. Kirschenbaum, p. 11. Kirschenbaum's distinction resonates with longstanding philosophical inquiries regarding language, communication, and reality, although I do not consider them here. On the origins of how information in particular was separated from its 'forensic materiality', see N. Katherine Hayles, *How We Became Posthuman*, Chicago: University of Chicago Press, 1999, pp. 50-83.
30. Ibid., p. 12.
31. Wendy Hui Kyong Chun, 'On "Sourcery,' or Code as Fetish', *Configurations* 16 (2010): 300.

singling out software as the source of media is 'a fetishism that obfuscates the vicissitudes of execution'.[32] This 'sourcery' also leads to the 'valorisation of the user as agent':[33] that is, the agential capacities of users are secured through their ability to know and manipulate the source. She writes:

> These sourceries create a causal relationship among one's actions, one's code, and one's interface. The relationship among code and interface, action and result, however, is always contingent and always to some extend imagined. The reduction of computer to source code, combined with the belief that users run our computers, makes us vulnerable to fantastic tales of the power of computing.[34]

Singling out source also points to unique forms of epistemology and politics, and in particular Chun connects it to perceptions about the 'the radicality of open source'.[35] If source is the essence of media and politics, open source, with its principles of access, visibility, modifiability, and, indeed, forkability (of the source), becomes the path to emancipation, or as Chopra and Dexter put it in the last line of their political treatise on software: 'The technical is political: to free software is to free our selves'.[36] From this perspective, we can begin to fully appreciate political investments in forking and what underpins Weber's remark, which might otherwise seem overstated: 'the core freedom in free software is precisely and explicitly the right to fork'. Forking guarantees that everyone has full access to the magical source of freedom, power and enlightenment.

Chun's critique is limited to software, but similar logics are at play in non-software based open projects. The idea of 'sourcery' can be generalized to refer to (political) perspectives that single out one source or essence as the site of knowledge and politics in the face of distributed and uncertain political realities. While the formal perspective described above provides a practical and working model of computation, it is founded on a logic of sourcery whose effects are only amplified when translated outside of software.

Is it possible to fork? From a formal perspective, the answer is 'possibly yes' but only by keeping forensic difference at bay and only if a shared understanding of source code or content preexists as the political essence of a project. It requires, that is, a kind of sourcery that might nonetheless create a sense of political satisfaction (if it is shared by all). From a forensic perspective, however, the answer is a definite 'no'. Not only is the source itself not forkable, but it also cannot be seen as the essence of a project. The contributors are part of the project, as is the unique logo, but so too is the domain, the hosting, and the servers. It gets more difficult: What about the rules that underpin a project, its discussion pages, its users, or the people who donate money to it? Its material infrastructure? What about key historical moments or the

32. Ibid.
33. Ibid.
34. Ibid.
35. Ibid, p. 302.
36. Samir Chopra and Scott Dexter, *Decoding Liberation: The Promise of Free and Open Source Software*, New York: Routledge, 2008, p.173.

way a project has been depicted in the media? What about, for example, Wikipedia's visibility on Google searches or the way its content is routed into other sites and software, such as special apps for 'smart' phones? From a forensic perspective (and this term is perhaps reaching its limits), exactly what constitutes a project is itself ambiguous.[37] Forking has transformed from an uncontested given to an uncertain process – a politics without guarantees.

Good Luck with Your wikiPAIDia: The Spanish Fork of Wikipedia

Wikipedia has been forked several times. The Polish Wikipedia was the first, then the Spanish. Later came Larry Sanger's fork of the English Wikipedia, Citizendium. In the old language of forking, what occurred with the Spanish Wikipedia is pretty cut and dry: Edgar Enyedy was no longer satisfied with the direction of the existing rulers of Wikipedia. The possibility of advertising was unacceptable, so he left and forked the project in a different direction. The result of the fork is two competing projects (the Spanish Wikipedia and the EL), both with politically satisfied contributors. I now return to this event, setting aside these prior understandings.

After Sanger announced that 'BOMIS might well start selling ads' and Enyedy promptly announced his departure, a heated debate ensued.[38] There was name-calling and accusations on both sides, but all this was secondary to the actual points of contention. Sanger began by defending the possibility of ads. He argued that ads would enable his continued employment (BOMIS no longer had enough funds to employ him) and that such employment would 'greatly benefit the project'.[39] He also pointed out that 'it has long been explicitly declared in several places that Wikipedia would EVENTUALLY run ads' to pay his salary.[40] On top of this, Sanger made two broader arguments. He pointed out that Wikipedia was made possible through capitalist forms of exchange from the beginning, and there was no use pretending it could escape that reality. Wikipedia only exists, he wrote, because 'I was paid to invent it'.[41] Second, and in a similar vein, Sanger connected his argument about the usefulness of paid employees to ones about the positive roles of full-time staff in non-profits in general.

Sanger's stance on ads was attacked from different angles by several people. Tomasz Wegrzanowski wrote, for example, that ads 'are distracting; they leave crap in reader's minds; they often promote evil things; [and] money from ads may make some people less objective'.[42] The debate continued over many posts, and arguments were played against one another.

37. This ambiguity is only further accentuated if we take materialist studies of medicine and 'hybrid geographies' seriously and attend to Wikipedia as they do their entities, as truly multiple. See Annemarie Mol, *The Body Multiple: Ontology in Medical Practice*, Durham: Duke University Press, 2002; Sarah Whatmore, *Hybrid Geographies: Natures, Cultures, Spaces*, London: Sage, 2002.
38. The exchange is well worth reading in its entirety. In what follows I try to summarize some the main points of contention.
39. Larry Sanger, 'Re: Good luck with your wikiPAIDia', 18 February 2002, http://osdir.com/ml/science.linguistics.wikipedia.international.
40. Ibid.
41. Ibid.
42. Tomasz Wegrzanowski, 'Re: Ads and the future of Wikipedias', 17 February 2002, http://osdir.com/ml/science.linguistics.wikipedia.international.

Many possible scenarios were suggested: limiting the visibility of ads to non-members, only having certain types of ads, and replacing ads with the more ambiguous 'sponsorships' – but none were powerful enough to settle the dispute. Another discussant, Joao Miranda, tried to lessen the force of the argument by pointing out that Wikipedia's content license enabled other people (or companies) to take its articles and post them on different sites that did display ads. Joao argued that 'if there is money to be made with ads, somebody will profit from your work. It can be Boomis [sic] or Yahoo or Microsoft'. [43] The implication was that it was better to have Bomis profit rather than someone else.

Disputes about advertising branched into other areas of concern. Sanger's defense of paid employees, for example, led to a discussion about the future of the project. He was asked to elaborate why paid staff were required and how many he thought were necessary. Sanger replied that 'five or ten full-time staff are REALLY, REALLY needed if this is going to be a world class resource'. [44] He further elaborated that Wikipedia would possibly be overseen by a 'non-profit Nupedia foundation' instead of Bomis, but this was 'yet to be finalized'. [45] (As the debate went on, the possibility of having a foundation oversee Wikipedia and Nupedia became a certainty.) The vision of a foundation with several staff members was also challenged: '5 to 10? What for?' [46] Sanger's view was put down to a lack of knowledge regarding the practices of Free Software informing Wikipedia. Questions of organization were to be solved via smarter design, with 'enhancements in software', not ongoing paid labor. [47]

Jimmy Wales didn't get involved until the debate was in full flight. His first words made it clear that whatever had transpired thus far was completely alien to his vision of the project: 'Gee, what a strange bunch of messages'. [48] Wales emphasized that no decisions were being made without first 'asking people'. He stressed that he was always open to discussion and that he had already made a public statement about ads some time ago. He took effort to publicize his sensitivity to the different needs of the community, but even more dissatisfaction emerged. Enyedy claimed that Bomis was 'behaving like a dot.org in order to get collaborators'. [49] He accused Wales of focusing too much on the concerns of the English Wikipedia and not being transparent. Enyedy claimed to have 'asked for a Perl script two months ago' but was 'still waiting', implying that Wales was not as responsive or open as he suggested. [50] Enyedy pointed out that even though community members had a right to access the software (which they could then copy and move), 'their contributions were being kept by Bomis in some way'. [51]

43. Joao Miranda, 'Re: Ads and the future of Wikipedias', 17 February 2002, http://osdir.com/ml/science.linguistics.wikipedia.international.
44. Sanger.
45. Ibid.
46. Wegrzanowski.
47. Ibid.
48. Jimmy Wales, 'The Future', 17 February 2002, http://osdir.com/ml/science.linguistics.wikipedia.international.
49. Edgar Enyedy, 'Ads and the future of Wikipedias', 18 February 2002, http://osdir.com/ml/science.linguistics.wikipedia.international.
50. Ibid.
51. Ibid.

While Enyedy, Sanger, Wales, and the others were arguing, Enyedy played down his role as leader. He noted that the others 'are planning without my guidance', [52] and that 'they are making moving proposals by e-mail, they are offering domains without ads and they are willing to write articles'. [53] Regardless of whose comments were more accurate (which is of little concern here), Enyedy's words proved more powerful. On February 27, 'AstroNomer' notified the mailing list that a group of the Spanish collaborators had forked. [54]

Equivalences and Differences – The Realities of Forking

After Enyedy wrote, 'Good luck with your wikiPAIDia' he recalls how he 'started receiving messages like: And now? What's next?' [55] The challenge of creating the fork still lay ahead. He writes:

> At that time, to set up a wiki and to export the .tar database from Wikipedia was almost impossible. The GNU/FDL license granted it could be done, made it legally possible. But no way! The Wikipedia page on Soureforge had instructions that read like hieroglyphics. And once again due to 'technical' reasons (that none of us believed), the downloadable database was never updated. [56]

Nothing about the process was easy or certain. Even though the source itself was 'legally' accessible there were a range of hindrances, and in the end he and the rest of the forkers could simply not take the source content. The available database was out of date and even this old content was difficult to 'export'. It took Enyedy a week to configure a spare PC to run as a server and actually set up the new wiki, and he and the other contributors eventually resorted to copying the content of the articles manually one at a time. He also had to find a host for the new project and register a new domain. These were not straightforward decisions, and Enyedy describes them as though they were crucial aspects of the new project:

> The first thing I thought about was looking for a hosting company and registering a domain. I was also thinking about how we could make this component effectively community-owned. I had the idea, for example, that we could change the domain registrar each year so there was not a single continuing owner. There were few hosting companies with the characteristics I was looking for. [57]

52. Ibid.
53. Edgar Enyedy, 'Five messages', 19 February 2002, http://osdir.com/ml/science.linguistics.wikipedia.international.
54. AstroNomer, 'spanish Wikipedia fork', 27 February 2002, http://osdir.com/ml/science.linguistics.wikipedia.international.
55. Edgar Enyedy and Nathaniel Tkacz, '"Good luck with your wikiPAIDia": Reflections on the Spanish Fork of Wikipedia' in Geert Lovink and Nathaniel Tkacz, *Critical Point of View: A Wikipedia Reader*, Amsterdam: Institute of Network Cultures, 2011, p. 116.
56. Ibid., p. 116.
57. Ibid., p. 116.

With exactly these kinds of decisions, Enyedy dealt with the task of creating equivalences – in this case of a wiki-based encyclopedia functionally similar to Wikipedia. He had to engage with an array of challenges and adversaries, from hieroglyphic instructions and unhelpful Wikipedia technicians to tediously cutting and pasting articles, as well as find new allies, such as the University of Seville, that ended up providing hosting. Along the way, Enyedy was constantly dealing with (forensic) differences: the wiki, server, host, and domain all imposed themselves. For the most part, Enyedy's challenge was to overcome these differences, with the exception of those that affected how the new project was to be organized in deliberate distinction to Wikipedia.

At least initially it seemed the EL fork was a success. After the first six months, the EL had added roughly 9,000 new articles, while the Spanish Wikipedia had not managed 900. Pretty soon, however, the Spanish Wikipedia bounced back, and by March 2004 it matched the EL with roughly 19,000 articles. By September 2005, the Spanish Wikipedia had over twice as many articles as the EL, with 28,709 and 66,984 respectively. [58] From January 2008 to January 2011, the EL added just over 8,000 articles and, as of February 2011, had roughly 46,000 articles and 67 users listed as active. [59] By contrast, the Spanish Wikipedia has surpassed 700,000 articles, with 1,724,640 registered users, 15,706 of whom are listed as active (having contributed in the last 30 days). [60] With the benefit of hindsight, therefore, it would seem that the EL failed as a genuine alternative to Wikipedia. But does this translate into a political failure? Put differently, were the forkers happy to reside in their new 'kingdom' while Wikipedia superseded it? According to Enyedy, this might not be best way to frame the political successes and failures of the event. [61]

The debate that played out on the international Wikipedia list revealed a host of latent disagreements between contributors. It turned what had been seemingly minor future possibilities into full blown 'matters of concern'. [62] It revealed an unbridgeable gap between contributors who had, up to that point, worked well together. Perhaps most striking is that this clash of positions forced a reconsideration of the entire project's contours. Some futures became less possible – a Wikipedia with ads owned by Bomis, for example – while others seemed more certain. By the end of the event, it was clear the Wikipedia would move to a dot.org domain, be overseen by a foundation, and would not run ads. Indeed, not having ads has become a crucial part of Wikipedia's 'free' identity, and since this event any talk of ads has

58. Comparative figures from: Wikipedia contributors, 'Enciclopedia Libre Universal en Español', http://en.wikipedia.org/w/index.php?title=Enciclopedia_Libre_Universal_en_Espa%C3%B1ol&oldid=413015658, accessed 7 February 2011.
59. Enciclopedia Libre Universal contributors, 'Special page: Statistics', *Enciclopedia Libre Universal en Español*, http://enciclopedia.us.es/index.php?title=Especial:Estad%C3%ADsticas&uselang=en, accessed 7 February 2011.
60. Wikipedia contributors, 'Special Page: Statistics', *Wikipedia, La Enciclopedia Libre*, http://es.wikipedia.org/w/index.php?title=Especial:Estad%C3%ADsticas&uselang=en, accessed 7 February 2011.
61. Enyedy and Tkacz, pp. 110-118.
62. See Bruno Latour, 'Why Has Critique Run out of Steam? From Matters of Fact to Matters of Concern', *Critical Inquiry*, 30:2, (Winter, 2004): 225-248.

always been quickly dismissed. In this sense, regardless of how many people left, through this event the identity of Wikipedia and its organizing principles became more stable. At each step of the debate there were small victories – a new ally was established, an argument refuted, a position redirected – and each side had resulting losses.

For his part, Enyedy prefers to situate the fork within a politics more akin to the tradition of strategies and tactics:

> The fork had its time and place, its goal and its consequences. Nowadays, the romantic point of view is that EL survived and is still going strong. It is a nice view, but wrong. EL has failed as a long-term project for one reason: The project itself was not intended to last. It was merely a form of pressure. Some of the goals were achieved, not all of them, but it was worth the cost. [63]

Whether or not the EL was only ever intended as 'a form of pressure', it did clearly impact Wikipedia. The fork demonstrated that the issues at stake were serious enough for contributors to leave, and it elevated the force of the debate that transpired on the list, along with its repercussions. In this sense, the discourse on forking considered earlier is correct in stipulating that the threat of forking influences the behavior of current project leaders. But the force of the threat is largely dependent on the weight of the reasons offered for forking, along with the position of the potential forker within the community. It requires the support of a large number of this community and the means for achieving formal equivalence (technical skills, equipment, funding, etc.). The Spanish fork also reveals more ambiguities than the current discourse has permitted. For one, the changes weren't implemented until after the fork had happened. By this time, the people who fought hardest to bring about change had already left. It is difficult, therefore, to determine how much force the threat of forking contained and what capacities it permitted. Indeed, none of the capacities mentioned by other authors – that it 'maximizes freedom', creates 'meritocracies', 'implies consensus', or ensures that 'decision making is democratic' – seem to accurately describe what happened with the Spanish fork. Instead, the debate was messy, the voices were uneven, options were limited, decisions were made on the fly, and the outcome was uncertain.

Over the last decade or so, political processes, especially by those that take place through networks, have been deeply influenced by the logic and cultures of software. Given the prominence of digital and networked media in most aspects of contemporary life, this is hardly surprising nor does it lend itself to easy moralizing. The nature of this new 'computationalist politics' [64] is uncertain: it is multiple and internally conflicted, its modes of organizing are unique, as are its architectures and forms of sociality. Sometimes there is sourcery at work. And as much as it is informed by and a product of the regime of computation, with its 'formal' account of things, it also draws from histories irreducible to cybernetics or information theory and includes practices that are always *more than computational*. Outside realities

63. Enyedy and Tkacz, p. 117.
64. See Part Four of David Golumbia's, *The Cultural Logic of Computation*, Cambridge, MA: Harvard University Press, 2009, pp. 181-220.

fold in (such as the role of advertising), and what seem like distant concerns become pressing (such as the future direction of a project or the ethics of non-profit organizations). There are still many possibilities and constant developments in these contact zones.

I have considered forking both as a practice and category of political thought that has been slotted into many commentaries on the politics of software and network cultures. Its constitutive role in open projects and its function as a safety net seemingly imbue forking with a remarkable set of capacities that serve to legitimate any politics it is attached to from the outset. The primary value of forking, as it has previously been interpreted, is its ability to discourage conflict arising from bad governance and to quickly settle any conflict in a way that is satisfactory for all parties – the so-called exit with benefits. But perhaps we have been too hasty in translating this technical term into the world of politics. Perhaps forking cannot bear its heavy burden or live up to its expectations. Rather than deploying forking as an exit from conflict or as a way to sweep aside messy realities and nitty gritty details, perhaps we should see forking as a way in.

Coda: Scaling Realities

Is it possible to fork? The question remains. I have deliberately been opaque, shifted focus and split the term in two. I have concentrated on micropolitics and sidestepped the question of legitimate governance. Despite it all, wasn't the Spanish fork a success? Isn't the emphasis on forensic difference trivial if everyone agrees a successful fork has taken place? Indeed, at least initially the Spanish fork did seem to enjoy some success, although I have tried to highlight the contingency of this success. And yes, if everyone agrees that if a fork has been successful, then it probably has indeed secured a formal equivalence with the original project. But I have shown that this too is never given, as it relies on a limitation and alignment of perspectives about *what matters*. Success is about translating what matters politically from one project to another. Within tight-knit software communities, what matters is often the code, which is often held in common as part of a computational worldview. What matters might be source code or content, but it might also be a set of rules or group of participants; it might be the way a project is closely related to other forms of software or how it is used in educational and other institutions. What matters differs between projects and from one person to the next.

As projects persist over time and space, they garner new participants, make and fix mistakes, develop and argue over policies, secure regular funders, become embroiled in media scandals, celebrate milestones, and generally extend outwards, becoming more real. Their forensic reality is amplified; their boundaries grow, shift, and are difficult to locate. The task of generating equivalences becomes more difficult. Difference is everywhere. When projects scale, what might matter politically scales with it. The original project is too caught up in the world; it is embedded. As of February 2011, the English Wikipedia is the largest of all Wikipedias. It has over 3.5 million articles and 23 million pages in total; almost 150,000 registered users considered active; and 664 active bots.[65] In total, the project

65. Wikipedia contributors, 'Special Page: Statistics', http://en.wikipedia.org/wiki/Special:Statistics, accessed 7 February 2011.

requires hundreds of servers spread across Asia, Europe, and North America.[66] Alexa currently ranks Wikipedia as the seventh most popular site in the world, and it regularly tops most search engine results.[67] The foundation that oversees Wikipedia employs more than 50 people and has an annual operating budget approaching 20 million U.S. dollars – a figure that steadily increases each year. As open projects like Wikipedia grow in popularity and transform and inspire new modes of political assembly, the question remains: Is it possible to fork Wikipedia?

66. Wikipedia contributors, 'Wikipedia', http://en.wikipedia.org/wiki/Wikipedia_servers#Software_and_hardware, accessed 7 February 2011.
67. Alexa, 'Top Sites', http://www.alexa.com/topsites.

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‘GOOD LUCK WITH YOUR wikiPAIDia’: REFLECTIONS ON THE 2002 FORK OF THE SPANISH WIKIPEDIA
AN INTERVIEW WITH EDGAR ENYEDY

EDGAR ENYEDY AND **NATHANIEL TKACZ**

This interview was conducted in January 2011.

In early 2002, Wikipedia had little more than 20,000 total articles. The project was still overseen by Larry Sanger. It wasn’t yet clear that Wikipedia’s ancestor and first effort by Jimmy Wales and Sanger to create a free online encyclopedia, Nupedia, would soon be irrelevant. There was no Wikimedia Foundation, no board of directors, no admins or sysops and no arbitration committee. There was no Essjay controversy, no regular media attention and no ‘sock puppets’. There wasn’t an army of bots working away 24/7, cleaning, ordering, scraping, prompting and reverting the activities of fallible humans. There were barely any ‘protected articles’. People had to check articles that might attract unwanted attention manually.

The term ‘wiki’ was totally obscure to anyone who hadn’t spent time in Hawaii, but people were still talking about ‘virtual reality’. Wikipedia still had a dot.com domain, which was owned – along with the hardware – by Wales’ company Bomis. For people who care about technical details, the software underpinning Wikipedia was UseModWiki, written in Perl. Wikipedia’s logo was already sphere-shaped, but the sphere was wrapped with a quote from Thomas Hobbes instead of the now familiar jigsaw design. The logo, along with 90% of the overall project, was in English. The project had begun to internationalize, but exactly what that meant was up for grabs.

In early 2002, the kind of stability that makes it difficult to see the contingency of things, had not settled on Wikipedia. People still had very different ideas about what Wikipedia was and what it might become. Sometimes these competing visions produced conflicts, which, like Wikipedia itself, manifest in ways not reducible to historical precedent.

Edgar Enyedy was involved in the Spanish Wikipedia from its launch on 20 May 2001, until mid-February 2002, when he abruptly left the project. Together with the rest of the Spanish Wikipedia community, they took the content they had written to another server, gave it a different name and carried on in a different direction. This reproduction and repurposing is made possible by the copyleft or ‘permissions based’ license attached to all Wikipedia articles. In Free and Open Source Software cultures, what Edgar and the early Spanish Wikipedians did is known as a ‘fork’. The following interview with Edgar brings this 2002 fork back to life. The purpose is not such much to settle old scores (although there is a bit of that), but to give detail to what we will see is a profound moment in the history of Wikipedia. While interviewing Edgar I also wanted to build a better understanding the unique nature of conflict in so-called open projects and the related political techniques that respond to such conflicts.

What follows is the first detailed, first-hand account of the process of ‘post-software’ forking; that is, forking outside of purely software-based projects.

Edgar was born in Oxfordshire, England, and raised in several countries. His formal training is in Philology and Computer Science and he holds a Master’s degree in Communications Systems and Networking (Polytechnic University of Madrid). He has worked as a journalist, editor, researcher and teacher. He has published in the areas of statistics and social science. He has spent a lot of time working on issues related to networking protocols and has a long history of involvement with the internet, dating back to ‘the old Usenet days’ (his words). Besides some community-based projects, Edgar is currently steering clear of public life, living in a very small town by the seaside.

Nathaniel Tkacz (NT): Perhaps we should begin with some basic background information. How did you come to be involved in Wikipedia?

Edgar Enyedy (EE): Back then, I was studying for a Masters degree in Communications Systems and Networking and I needed to structure and display the info I was handling and gathering in a horizontal network with easy hyperlinking. I tried several wikis and finally I chose UseModWiki, as the programming language in which it was written, Perl, is not that difficult. I checked some implementations of UseModWiki, which first lead me to MeatballWiki, [1] and finally to Wikipedia. Wikipedia was very small. There was a bunch of people claiming that those blank pages would some day turn into an encyclopedia. Not like *Encarta* or *Britannica*, which were our references at that time and both pay-per-consult, but a free one. I started editing, mainly focusing on Talk Pages, as I found errors or incomplete information. I used to come back to those pages, sometimes I left a comment, or maybe I didn’t check back for a week or so. The international projects were just beginning and it soon occurred to me that the Spanish Wikipedia should be the second main encyclopedia, based on the fact that the Spanish-speaking population around the world was estimated to be over four hundred million (I didn’t think it would be Mandarin, due to the many dialects in China). That’s how I came to collaborate on the Spanish version of Wikipedia.

NT: How active were you on the Spanish Wikipedia in those first six months? How many of there were you? Did you know each other?

EE: There were about 20-25 regular collaborators who worked everyday, editing, reverting vandalism, watching articles and writing new ones. On top of that, there were 30 or so more who visited once or twice a week, but also worked hard to contribute to the project.
Apart from the typical contributions, my role was to communicate with the emerging international community. I was living in Madrid and most other collaborators were not from there. I didn’t go to great lengths to establish friendships, but some collaborators, both from Wikipedia and the EL [2] have reunited a few times.

1. Started in 2000 by Sunir Shah, MeatballWiki is one of the first wikis. Its focuses on discussing online communities and related topics.
2. The Enciclopedia Libre Universal (EL) was the name given to the fork.

NT: There were a lot of open questions about how the emerging encyclopedias would relate to each other and in particular the English language original, including exactly how they would differ and where they would overlap. How did that play out with the Spanish Wikipedia?

EE: Even when the basic design was set up, there was still an obvious English presence on the Spanish Wikipedia. You might have found Spanish pages in both Spanish and English, even in the same paragraph or sentence. The software, for example, was not translated at all and it cast an English (language) shadow over the entire project. The basic pages (what Wikipedia is not, be bold, how to start, sandbox, etc.) were all in English; we had the American logo in English and so on. All we had was an index page and some articles translated or summarized from the American Wikipedia.

This American shadow marked the first point of contention between myself and Sanger and Wales. Since they began from scratch, I thought we should do just the same. The Spanish encyclopedia could not be a mere translation of the English Wikipedia. The organization of topics, for example, is not the same across languages, cultures and education systems. There are also quite different perspectives regarding censorship. Former AOL users used to remind me that explicit biology images are widely accepted among us, but would be considered inappropriate on the American version. Historiography is also obviously not the same. We are used to our own History schemes and the American one didn't fit at all. Basically, it became very clear that the American template would not fit the Spanish project.

At that time, all the Wikipedias had an index on their first page and that index seemed entirely strange to us. I worked hard on creating a new one, dealing privately with Wales over email and publicly with Sanger on the mail list. I worked from eight to twelve hours a day for six months to get the Spanish Wikipedia working and to make it more attractive for users. We even set up an alternative index based on the Universal Decimal Classification, with templates for biographies, geography, and so on. From the HomePage you could switch to that index if you felt more comfortable working that way.

I also started to develop a 'Wikipedia Style Book' [3] for the Spanish language version that advised on how to deal with acronyms, long and compound surnames, the use of bold and italics and so on. Our editing policies and rules were very similar – we were all Wikipedia – but not the content or classification method. This Style Book came from my background in journalism. It was warmly welcomed by the community and was widely used. At the time, the idea was not adopted by the other Wikipedias.

NT: What about the relationship between the Spanish and English language communities during this period?

EE: The relationship was a strange kind of tolerance from the American staff. They knew for sure that they couldn't afford to let us go, as each and every international project was

3. Still available at: http://enciclopedia.us.es/index.php/Enciclopedia:Libro_de_estilo.

receiving a lot of attention. The international wiki list was watched carefully, not only by the international community, but also the American community. They paid close attention to how things were developing.

NT: You are already hinting towards the fork, but first I want to get a sense of Larry Sanger's early role. From the early discussion lists (archived on osdir), it seems like Sanger very much acted like the leader or at least 'facilitator' of the entire Wikipedia project. Is this how he was generally received by the Spanish Wikipedia?

EE: Larry Sanger acted as a Big Brother. He was an employee, a Bomis-Wales wage-earning worker. I can't stress this enough. Nupedia's failure left him spare time and he was allocated by Wales to Wikipedia. I really regard him as a co-founder of Wikipedia, even though this fact has become less visible over the years. There were two people heading the project, and it was difficult to tell where the ideas came from.

The American Wikipedia might have seen him as a 'facilitator', but we regarded Sanger more like an obstacle. At that time he was not an open-minded person. I have to admit that he brought some good ideas to us, but the American Wiki was too caught up in the interests of Bomis Inc.

I engaged in head-on confrontations, open clashes, with Sanger. We were all working on a basis of collective creation, with peer-to-peer review. It was an open project, free in both senses. [4] We were all equals, a horizontal network creating knowledge through individual effort – this is the most important thing to keep in mind. But Sanger turned out to be vertically minded. His very status as a paid employee led him to watch us from above, just waiting for the right moment to participate in active discussions in the (mis)belief his words would be more important than ours.

NT: The most significant of these open clashes, the one that lead to your departure from Wikipedia, was sparked by a seemingly insignificant remark, made by Sanger in passing, about the possibility of incorporating advertising in order to fund his future work on the encyclopaedia(s). His exact words were 'Bomis might well start selling ads on Wikipedia sometime within the next few months'. From your reply, it was very clear that you were against ads, but more than that, it seems like this was a decisive moment, the straw that broke the camel's back, as they say. Can you revisit this event and tell us how it unfolded.

EE: The possibility of advertising was out of the question. I asked Wales for a public commitment that there would be no advertising. This only came after we left. There were, however, other things that I was not happy with, some pretty straightforward, others a little more complicated:

4. Edgar is referring to a distinction made by Free Software pioneer, Richard Stallman. He means both free as in cost, as well as in the greater sense, free to use, study, modify and (re)distribute.

– All Wikipedia domains (.com, .org, .net) were owned by Wales. I asked myself 'why are we working for a dot com?' I asked for Wikipedia to be changed to a dot org.

– I wanted the Big Brother out. Larry Sanger was against the nature of the project itself. None of us felt comfortable with such a figure.

– I had asked for the autonomy of each foreign Wikipedia. We did not want to be seen as mere translations of the American version. We asked for things like our own logo, and Wales agreed, but it was clear that he didn't consider the international wikis as an addition to the 'main wiki' – all the best articles were there, as well as the most contributors and total articles. I was told so many times to translate from the main wiki, and my response was always the same: We are not a translation of the American Wikipedia!

– There were significant software issues. The latest software releases and revisions were only installed and running on the Amercian Wikipedia. The Polish Wikipedia, for example, could hardly develop at that time due to problems dealing with special Polish characters. All of the international Wikipedias were running out-of-date software and because Bomis Inc. controlled the wiki farm, we couldn't do anything about it. I asked for access to the farm (just the Spanish server), but after a short discussion my request was denied. They said it was for security reasons because Bomis Inc. was hosting files from its clients on the same server. As we couldn't access the wiki farm, I asked for mirror servers to be set up over and over again. The answer was always the same: that we needed to keep the project together. Wales added that there were some technical reasons for why they couldn't set up a mirror site, but he couldn't explain what they were (and didn't even seem to believe them).

– Wales had stated his future intentions of making hard copies from the encyclopedia(s), noting that it was permitted under the GNU/FDL license. It clearly was part of the license and I agreed with the idea. I told him, however, that the organization that initiated such a project would necessarily be a foundation, and not just one, but rather a foundation in each and every country. I saw the project as completely non-profit and thought our goal shouldn't be to figure out how to pay wages. Wales always replied that a foundation was very difficult to set up. I told him it was an easy deal: you are contributing to the project with the servers, we are giving our time and effort in an altruistic way, but no-one is going to make money from the project unless it is proven that the money goes to people who really need it – and that doesn't include staff members.

– When I asked Wales through private emails to set up something – to set up the Basque Wikipedia, for example – he always replied: 'I'm not a wealthy man'. I heard that many times. A couple of years back he said in an interview 'I don't care about money'.[5] When I think about this position and those exchanges, it makes me laugh. Wikipedia has created a large foundation of wage-earners, and each year he has to ask for ever-increasing amounts of money. This is what I didn't want to happen: a large, money-centered organization made possible by the free work of the community. After we forked, he wrote to me and said: 'There will be a foundation and a place for you is waiting there'. It was clearly an implicit deal: you all come back to our project and our servers, and I'll reward you. The fact is that I wasn't looking for a seat on a foundation, I just wanted the whole project to work the best way we could (or knew how to).

5. Edgar is referring a comment made by Wales in the Catalonian newspaper *La Vanguardia*, January 8th, 2009.

Because of these things, I didn't trust Wales' intentions. Not at all. We were all working for free in a dot com with no access to the servers, no mirrors, no software updates, no downloadable database, and no way to set up the wiki itself. We were basically working for Bomis Inc., and asked in a gentle way to translate from the main Wikipedia. Finally, came the possibility of incorporating advertising, so we left. It couldn't be any other way.

I would like to remark upon the fact that as it is known today, the International Wikipedia that you all know and have come to take for granted, might have been impossible without the Spanish fork. Wales was worried that other foreign communities would follow our fork. He learnt from us what to do and what not to do. The guidelines were clear: update the database; make the software easily available on Sourceforge; no advertising at all; set up a foundation with a dot org domain and workers chosen from the community; no more Sanger-like figures, as well as some minor things I haven't mentioned, such as free (non-proprietary) formats for images.

NT: During the discussions about leaving and forking, you were very active, but you also note that others shared your opinions. Were you leading the revolt (as it is written on the EL entry on the English Wikipedia), or were there other influential/respected people with significant roles?

EE: You could say that I was some sort of unofficial leader together with Javier de la Cueva, and yes, others shared our opinions. Sadly, there weren't other influential and respected people with significant roles. Many remained anonymous. I did, however, receive a lot of support from the community. Some offered money, others offered help with hosting and securing a domain. It was Juan Antonio Ruiz Rivas who organized hosting with the University of Seville, as that is where he worked.

I recognized that people wanted to make suggestions, to debate and be heard. But those kinds of processes can be lengthy, so I made the decisions. I thought the timing was critical – a line had been crossed and I didn't want it to be a never-ending story. Luckily, the community supported me. This was the extent of the unofficial leadership: I made a decision and others supported it.

NT: In the small body of literature available about forking, it is often assumed that forking is as easy as downloading an album. Although the 'right to fork' is thought to be an essential aspect of open projects, the actual details of forking are rarely considered. What exactly happened when you decided to fork? What were the decisions that you were faced with (regarding content for example)? Did it require much technical expertise?

EE: At that time, to set up a wiki and to export the .tar database from Wikipedia was almost impossible. The GNU/FDL license granted it could be done, made it legally possible. But no way! The Wikipedia page on Sourceforge had instructions that read like hieroglyphics. And once again due to 'technical' reasons (that none of us believed), the downloadable database was never updated. I asked Wales about the wiki itself and the database and he just replied 'in the future'. It was not fair. These conditions did not resemble what the GNU/FDL was supposed to ensure.

I remember after I wrote 'Good luck with your wikiPAIDia', [6] I started receiving messages like: And now? What's next? The first thing I thought about was looking for a hosting company and registering a domain. I was also thinking about how we could make this component effectively community-owned. I had the idea, for example, that we could change the domain registrar each year so there was not a single continuing owner. There were few hosting companies with the characteristics I was looking for. Remember, at that time, to work on the server side was not as usual as it is today. In actual fact, one of them was Bomis, but hosting with them would be a cruel joke. Javier de la Cueva, who is a very well known lawyer, offered his domain as well, but as mentioned, we ended up getting hosting from the University of Seville.

Setting up the new encyclopedia wasn't an easy job. I began by configuring a spare PC as an Apache server and started working on the software. The Perl scripts ran OK and the wiki could be reached through a proxy server from other computers on the net. 'Well', I thought, 'it runs'. It took me a week to get it going, but this seemed a very small amount of time when compared to the dozens of hours I spent arguing about the project with Wales and the community. The Spanish community had worked very hard on Wikipedia. I remember writing a lot of articles on Computer Sciences and Literature, making Indexes, developing subjects and so on, and the rest of the community was just as active. When the server was up and running, and as the GNU/FDL permitted, we began copying our articles from Wikipedia. Is wasn't an automated process, no bots or anything, just us bringing the articles across one by one from Wikipedia's server to ours. That was the beginning of EL and it was the strongest time for the community. I also started sending individual emails to hundreds of town councils and tourism offices, asking them to participate. About 10% joined in, writing pages on their respected towns, which was a pretty good response rate.

Our actions made Wales realize how the whole project could be hosted on non-profit servers all over the world. Others could follow in our path, so he had to change things quickly on the American and International Wikipedias.

NT: Once the fork - titled the Enciclopedia Libre Universal (EL) - was set up, how did it differ from the Spanish Wikipedia?

6. This was the last line of Edgar's reply to Sanger's post about possibly introducing advertising (and partially quoted above). In this reply, Edgar informed the American Wikipedians that he had left the project.

EE: We had realized that a lot of content on the internet was the same, maybe slightly changed, but practically the same info across different sites on a chosen topic. If you wanted to find out about a particular museum, for example, the info you received from Wikipedia was just the same as you would get on the official page of the museum itself, slightly converted, and reworked, like (bad) school homework. We wanted quality over quantity, and original articles, not carbon copy.

This is one of the many things I criticize today: Wikipedia has led us to a verbatim information internet. There used to be a lot of different sources, but nowadays the info you get is carbon copy all over the net. There aren't enough filters. A lot of pages are just circulating Wikipedia texts, including its rights and wrongs, but without its disclaimers.

I had also suggested that we begin some articles only with links, or just a small stub with links. There was already some very high quality information about many topics, both from official and non-official pages and sources, and there was no sense in reworking all that material. Just an article with an official link would suffice. I was told that this was not the 'proper way', as they (Wales and Sanger) didn't want to look like Dmoz. [7] Of course, today Wikipedia pages are full of links to other sites.

NT: While the Spanish Wikipedia stalled severely for at least a year after the fork, after two years it had bounced back and was already larger than the EL. Today, the Spanish Wikipedia has almost 700,000 articles, while the EL has more or less flat-lined at around 45,000 articles. Is there still a community around the EL? Did anyone go back to Wikipedia?

EE: Nowadays, almost all EL members belong to Wikipedia too. There is still a working community. However, it is wrong to think (as Wales had) that EL contributors are duplicating the work they do simply because the CC license allows the content to be transferred to Wikipedia. The truth is that they enjoy working without Wikipedia's guidelines and structure above them. They choose their own policies. A lot of the time EL contributors would upload their own articles to Wikipedia, but that wasn't necessarily the main goal.

NT: While it would be easy to look at the numbers and conclude that in the long run the EL failed, I think it is clear that the fork had a significant impact on the direction of the entire Wikipedia project. As you have stated, after the Spanish editors left, Wikipedia decided not to have ads; it changed its domain to dot org; it upgraded a lot of the software; and it set up the Foundation to oversee the project.

EE: Right. The fork had its time and place, its goal and its consequences. Nowadays, the romantic point of view is that EL survived and is still going strong. It is a nice view, but wrong. EL has failed as a long-term project for one reason: The project itself was not intended to last. It was merely a form of pressure. Some of the goals were achieved, not all of them, but it was worth the cost.

7. Dmoz (directory.mozilla.org), now referred to as the Open Directory Project (ODP) is a content directory, which attempts to organize and categorize websites.

NT: For a while there was talk of officially reuniting the projects, but it never happened. What was the relationship between the encyclopedias after the fork?

EE: Both encyclopedias linked to each other, and shared contributors. A lot of valuable people left Wikipedia. But there's a life cycle for collaborators and newcomers reached Wikipedia first. The reunion never happened because EL wanted to protect and preserve the free space it had carved out for itself – some sort of oasis. Nowadays I would like to see them back on Wikipedia, working on the same project, reunited at last, as the EL mission is accomplished.

NT: What do you think of Wikipedia today?

EE: Today, Wikipedia has become a huge, hierarchical social network, behind an unreliable knowledge repository. That's what it is, merely an unreliable repository. As the project continues to grow, so does Wales' celebrity status, but the same cannot be said about the quality of the project, which is being left behind. Wikipedia has reduced the minimal requirements of knowledge to below average in both quality and reliability.

The rise of fundraising campaigns also shows what Wikipedia is not: free. During the 2010 campaign, Wikipedia received $16 million in donations. It is often said that Wikipedia competes with the Googles and Facebooks of the net on a fraction of the budget, but Wikipedia never had to play this game at all. If anything, the foundation should be generating revenue, though not through selling ad space (the original idea was to sell hard copies). As we speak, the foundation is also offering scholarships to attend the annual 'Wikimania' event. All revenue should go towards realizing Wikipedia's main vision of distributing knowledge to those who need it most – this certainly doesn't include providing scholarships to its own events.

NT: Would you do anything to change Wikipedia?

EE: Wikipedia is working well the way it is. It is what Wikipedians want it to be. There are a lot of people involved in carrying on the project and this is what they have chosen. It's not my kind of project, not my social network,[8] so I'm not a user. I dislike Facebook, Twitter and Wikipedia policies, so I stay away from them. There is a lot of work to be done to change Wikipedia, and I guess I am in a minority.

8. Edgar described to me that he sees these kinds of projects as forms of social networks, with the discussion and interaction taking place on things like the 'talk pages' during the creation of articles.

VIDEO FOR WIKIPEDIA AND THE OPEN WEB

PETER B. KAUFMAN

Introduction: Wikipedia, Video, and Education

> Knowledge is our most important business. The success of almost all our other business depends on it, but its value is not only economic. The pursuit, production, dissemination, application, and preservation of knowledge are the central activities of a civilization. *The Marketplace of Ideas*[1]

Moving Images for the Web

Video, in many ways, is our newest vernacular – comprising 80 percent of World Wide Web traffic today. It will reach over 90 percent, according to many estimates, by 2013. Such is the scale of its use that the amount of video uploaded to YouTube – and YouTube alone – on the average single day would take one person working nine to five (on nothing else) 15 years to watch. Yet it is an open question as to how much of the world's video online today is of value to culture and education. The BBC Archive has digitized and put online less than 5 percent of its holdings, for example. ITN Source has processed less than 1 percent of its news and documentary resources (more than 1 million hours). Likewise the British Film Institute has moved less than 1 percent of its authoritative films catalog online. And this is to say nothing of the analog collections at the Library of Congress, U.S. National Archives, or, for that matter, the program libraries and movie catalogs from the leading television networks and film studios around the globe.[2]

Still, cultural and educational institutions are making new efforts to participate in the world's video conversation. Universities, libraries, museums, and archives are actively digitizing their audiovisual collections and records of those materials and putting that information on the web. Universities such as MIT, Yale, and Oxford, for example, are posting thousands of hours of video content from their courses online for free for everyone. Museums such as the Smithsonian Institution and Amsterdam's Museum of the Tropics are establishing new types of information commons and access strategies that soon will feature moving image resources. Sector-wide national initiatives, such as Film & Sound Online in the United Kingdom, Sound

1. Louis Menand, *The Marketplace of Ideas: Reform and Resistance in the American University,* New York: W. W. Norton, 2010, p 13.
2. Peter B. Kaufman and Mary Albon, *Funding Media, Strengthening Democracy: Grantmaking for the 21st Century,* Baltimore: Grantmakers in Film + Electronic Media, 2010, http://www.gfem.org/node/873; James Grimmelmann, 'The Internet is a Semicommons', *Fordham Law Review* 78 (2010), http://james.grimmelmann.net/publications; and the film 'Knowledge Is', a 2010 JISC Film & Sound Think Tank production, http://www.jisc.ac.uk/en/whatwedo/programmes/filmandsound.aspx.

and Vision in the Netherlands and multinational projects such as the 19-country-member EUScreen project are putting hundreds of thousands of hours of archival footage online. New productions sponsored by educational consortia are also taking root and going up, with topics and disciplines ranging across all of the humanities, sciences, and vocations. [3]

While these efforts are substantial, current resource constraints, digitization challenges, and outdated legal and business frameworks will keep quality video subordinate to moving images from poor-quality pirated works, user-generated content, and pornography for some time to come. Philanthropic foundations, government agencies, and public-private partnerships involving firms such as Amazon, Apple, Google, and the Internet Archive enable a number of educational and cultural institutions to launch online video projects – but not at scale. Technologies and processes for the mass digitization of film and television collections are not yet cost-effective enough for these institutions to take the steps necessary to put the good rich media they hold, produce, and plan to produce online. Copyright laws remain out-of-step and cast a pall over institutions that hesitate to move online, out of what has been called an excessive deference to often invisible and possibly even nonexistent rightsholders. [4] And knotty production contracts and donor agreements executed before the full-on arrival of the internet continue to stymie professionals seeking to make this kind of media accessible in the sector.

New opportunities are arising, however, to jump-start progress so that more video from the world's leading cultural and educational institutions is made openly available to meet the growing demand for quality content. Some of these opportunities will provide more flexible and distributed systems than traditional video-on-demand delivery and take advantage of the open web. One of the most substantial is the effort launched in 2009 by the Ford Foundation, Mozilla Foundation, and others to help stakeholders in quality video make that video accessible online to the broadest possible audience using Wikipedia and open licensing. This effort embraces the distributed nature of the web, with potentially huge viewership and engagement returns for cultural and educational institutions on relatively minor investments.

The Future of Video

The movement toward open video has its roots in the free software movement that is largely powering the web today and which, through companies such as Apache, IBM, Mozilla, Oracle, and Red Hat, has resulted in trillions of dollars of value creation for the stakeholders

3. See: http://ocw.mit.edu/index.htm; http://oyc.yale.edu/; http://www.steeple.org.uk/wiki/Main_Page; http://www.si.edu/commons/prototype/index.html; http://www.tropenmuseum.nl/; http://www.filmandsound.ac.uk/; http://instituut.beeldengeluid.nl/; and http://www.euscreen.eu/. Interoperability of technologies and platforms is still a ways away. One day, for example, the video archives of Holocaust survivors at http://college.usc.edu/vhi/ and the survivors of the Palestinian 'nakhba' at http://www.nakba-archive.org/index.htm will be searchable together across all platforms.
4. See Rick Prelinger, remarks at the *Video, Education, and Open Content* conference, May 2007, http://opencontent.ccnmtl.columbia.edu/ and http://ccnmtl.columbia.edu/opencontent/may23/next_steps_ii_opening_code_and.html.

involved. [5] The open or open-source video movement recognizes the contributions from, but also the limitations inherent in, the video work of industry leaders such as Adobe, Apple, and Microsoft. Flash, Quicktime, Windows Media, and Silverlight are handsome technologies. But they have been developed and controlled by commercial companies that often protect themselves against innovations by outside coders, designers, developers, programmers, technologists, lawyers, producers, and educators keen to move away from proprietary solutions that are delivered for the benefit of shareholders rather than the billions of everyday people who connect via the web. [6]

The open video movement recognizes the importance of rights and licensing strategies designed to create profit or serve national interests, but it is critical of systems that prohibit access to film and sound assets from becoming part of our collective audiovisual canon. Many film and sound resources digitized for preservation, for example, do not appear online because of dated copyright rules; and some of the great investments (millions of dollars, in fact) by, for example, the U.K. government in film and sound resource digitization result in materials put online only behind educational and national paywalls that keep students in Nairobi and Nashville from using London-based resources in their work.

Enabling video to catch up to the open-source movement on the web goes to the heart of our efforts to improve our understanding of the world. The central technologies of the web – HTML, HTTP, and TCP/IP – are open for all to build upon and improve, and video's future should be similarly unobstructed. As technologist, entrepreneur, and media scholar Shay David has stated:

> A fully featured video stack – including content ingestion and transcoding, media management, hosting and streaming, publishing, syndication, analytics, monetization and more – is a very complex issue, which is unlikely to be achieved by a single company in one shot. Open source video offers an alternative. By creating a global community of developers – both individuals and corporations – who each focus on their own layer of the stack, and by then releasing all the code for free, open source video promises a robust infrastructure that is at one and the same time easy to adopt, adapt, and modify, and cheap to deploy and operate. Developers enjoy full flexibility and an open framework to innovate and customize their own solutions while leveraging the community's work, and enterprises benefit from economies of scale. [7]

5. The 'political economy of open source' is described in Steven Weber, *The Success of Open Source,* Cambridge: Harvard University Press, 2004; and Rishab Ayer Ghosh (ed.) *CODE: Collaborative Ownership and the Digital Economy,* Cambridge: MIT Press, 2005. See also the blogs and wikis of Open Business and OSS-Watch, http://www.openbusiness.cc/ and http://www.oss-watch.ac.uk/.
6. See the work of the Open Video Alliance and its annual Open Video Conference, http://www.openvideoconference.org.
7. Shay David, 'What is Open Video All About?', http://www.reelseo.com/open-source-video/.

Beyond the technological dimension is our relationship as citizens to the system of mass communications. Radio and television – especially in the American case – have missed many opportunities systematically to nurture and protect cultural and educational content. [8] Today we stand at another fork in the road with the development of internet video, which commercial companies may seek to control for private rather than public gain. [9] The return on investment in open, rather than proprietary, video solutions moving forward will likely be great for all stakeholders – technologists, producers, the educational sector (especially), and the public. Open video advocates make the point from a variety of different perspectives.

Why Wikipedia?

Wikipedia is, as it describes itself, a 'multilingual, web-based, free-content encyclopedia' – one based on open technologies. One of the ten most popular websites in the world, it attracts more than 65 million visitors a month. Search on any proper place name or location, and chances are that Wikipedia will be the top result – or close to it. According to the site:

> There are more than 91,000 active contributors working on more than 15 million articles in 270 languages. As of June 30 [2010], there are 3,338,186 articles in English. Every day, hundreds of thousands of visitors from around the world collectively make tens of thousands of edits and create thousands of new articles to augment the knowledge.

Facing such a popular portal to free knowledge, many cultural and educational institutions are drawn to Wikipedia's potential to steer traffic from visitors to their sites through Wikipedia's linking, citation, and referral policies.

Wikipedia's intention is to contain only existing knowledge that is verifiable from other sources, and so original and unverifiable works are excluded. Furthermore, the site requires that article contributions represent a 'neutral point of view', rather than reflect one side or one interpretation of an event or story. Open to anyone who wants to contribute, it is 'a massive live collaboration, continually updated, with the creation or updating of articles on historic events within hours, minutes, or even seconds, rather than months or years for printed encyclopedia'. [10] It also guarantees attribution to sources and provides users with transparent histories of article changes and user analytics – a kind of zero-cost Nielsen media research service for those interested in distributing their media online.

8. On the tragedy of our earlier communications forms left untended, see Robert W. McChesney, *Telecommunications, Mass Media & Democracy: The Battle for the Control of U.S. Broadcasting, 1928-1935*, Oxford: Oxford University Press, 1993; Thomas Streeter, *Selling the Air: A Critique of the Policy of Commercial Broadcasting in the United States,* Chicago: University of Chicago Press, 1996; Michelle Hirmes, *Radio Voices: American Broadcasting, 1922-1952,* Minneapolis: University of Minnesota Press, 1997; and Pat Weaver, *The Best Seat in the House: The Golden Years of Radio and Television,* New York: Alfred A. Knopf, 1993.
9. See Lawrence Lessig, Jonathan Zittrain, Tim Wu, et al., 'Controlling Commerce and Speech', *The New York Times*, 9 August 2010, http://www.nytimes.com/roomfordebate/2010/8/9/who-gets-priority-on-the-web/controlling-commerce-and-speech.
10. Wikipedia contributors, 'About', http://en.wikipedia.org/wiki/Wikipedia:About; http://www.alexa.com/siteinfo/wikipedia.org.

The HTML5 media sequencer, jointly developed by Kaltura and Wikimedia are currently in testing, enables users to stitch openly-licensed assets into long-form video entries. This browser-based collaborative editing holds tremendous potential for archival reuse and new media education. [Image by User Mdale CC-BY-SA 3.0]

It is also freely available and free of advertising. Powered by thousands of volunteers and millions of dollars in funding raised from foundations and contributors for the non-profit Wikimedia Foundation, it is unlikely to ever close itself off to new contributors, as some online communities have. The project cites four freedoms as core to its content and technologies – the freedom to use; the freedom to study; the freedom to redistribute; and the freedom to change. [11] Any content contributions that contain provisions that might restrict any one of these core freedoms are forbidden and will be removed. [12] It is thus the freest, as well as the largest and most popular, media commons on the web.

Though rich in text, images, and sounds, in moving images Wikipedia is wanting. The Wikimedia Commons, where rich media resides as it gets incorporated into Wikimedia articles, contains seven million items. Only a few thousand of these today are moving image resources; most, in fact, are photographs. [13] This is in part because tools to play, annotate,

11. www.freedomdefined.org.
12. Liam Wyatt, 'Video and Wikipedia', presentation to the JISC Film & Sound Think Tank, 30 June 2010, http://www.jisc.ac.uk/whatwedoprogrammes/filmandsound.aspx and Wyatt, 'The Academic Lineage of Wikipedia: Connections & Disconnections in the Theory & Practice of History', University of New South Wales, unpublished, 2008.
13. Wikipedia contributors, 'Ten things you may know about images on Wikipedia', http://en.wikipedia.org/wiki/Wikipedia:Ten_things_you_may_not_know_about_images_on_Wikipedia.

and edit video in free/libre open-source software (FLOSS) formats have, until now, not been widely distributed, and in part because moving image media that is freely open to redistribution and reuse – without limits – has not been made available in great numbers online.

All that is now about to change. With the investment of public and charitable foundations (including the Ford Foundation and Mozilla), private underwriters (including the video technology firm Kaltura), and sister organizations, the Wikipedia community has been developing open-source technologies and know-how to enable video to be welcomed as a new medium for the site in 2011. The addition of video to Wikipedia is an ambitious project, with the goal of facilitating video editing in ways that are as intuitive as editing a text article is today.

The transition to a more media-rich encyclopedia, and the development of video tools for the site, will happen over time. As of September 2010, Wikipedia is accepting video clips that are up to 100 megabytes in size to complement current text articles. These clips need to be made available for liberal reuse – with permissions for download and remix – and in open technology formats (a conversion process that Wikipedia is now able to automate). Soon, editing and annotation, tagging, and hyperlinking technologies will be present to enable videos to be edited online – and edited collaboratively – with the same facility as text is today. [14]

As these doors open, universities, museums, libraries, and archives naturally are invited to add media that in turn adds to knowledge online.

Requirements, Risks, and Rewards

> *Knowledge is social memory, a connection to the past; and it is social hope, an investment in the future.* [15]

Let's say your university, museum, library, or archive has video, and you'd like to consider sharing it online. Or, your institution is about to produce some video and you think it might be a good fit for articles on the site. In technical terms, Wikipedia is currently ready to host small moving image files – under 100 megabytes – that are in an open-source format. If your moving image clips are in digital form, the hardest steps are already behind you, and the marginal cost of putting them on Wikipedia is low. In a nutshell, that cost is likely to be the human labor of converting the clip from one digital moving image format to another (there are free converters, as we explore below) and clearing the rights to it so that it can carry a free license that conforms with the encyclopedia's four basic freedoms.

As you look at the best videos you have for posting on Wikipedia, consider the following three requirements:

14. Wikimedia contributors, 'Multimedia:Hub', http://usability.wikimedia.org/wiki/Multimedia:Hub.
15. Menand, p. 13.

Photo by User Polarbear, CC-BY-SA 3.0, http://en.wikipedia.org/wiki/polar_bear.

Requirement 1. A Neutral Point of View
In substantive terms, Wikipedia is an encyclopedia, and so requires all contributions to reflect a 'neutral point of view'; indeed, the encyclopedia describes this NPOV policy as a bedrock principle, along with Verifiability and No Original Research, the two other editorial cornerstones. [16]

Video, with components including images, sounds, and text, is more difficult than text alone to patrol for this requirement. Simple animations easily pass this hurdle, and so can, for example, moving images of animals in nature.

Wikipedia and web communication generally are still at the beginning of a long process of self-definition when it comes to video. The twin challenges of providing neutral and objective information and a platform for collaborative editing of all media (not just text) will require the site to develop detailed policies for moving image and sound NPOV editorial requirements. The publication of such policies will be developed on Wikipedia here: http://en.wikipedia.org/wiki/Wikipedia:List_of_policies_and_guidelines; and the section on 'Images and other media' will need to outline a full suite of policies and manuals of style. Quite naturally, cultural and educational institutions whose primary mission is education would be natural advocates for such guidelines, which will be developed as video in practice gets added frequently and centrally to the site.

16. Wikipedia contributors, 'NPOV', http://en.wikipedia.org/wiki/NPOV; Wikipedia contributors, 'Neutral Point of View', http://en.wikipedia.org/wiki/Wikipedia:Neutral_point_of_view. General editorial policies for Wikipedia are explained online here: http://en.wikipedia.org/wiki/Wikipedia:List_of_policies_and_guidelines. Its 'five pillars' are listed here: http://en.wikipedia.org/wiki/Wikipedia:5P

Las noticias y el manejo de la información en la Guerra de Malvinas [editar]

Informativos de ATC, Argentina Televisora Color, durante la guerra de Malvinas. Crónicas desde las islas a cargo de Nicolás Kasanzew. Fuente: Canal 7. Televisión Pública de Argentina. Archivo de noticieros (1982).

Las noticias de Malvinas están ligadas directamente al desarrollo del conflicto bélico, llevado a cabo entre el 2 de abril y el 14 de junio de 1982. El manejo de la información es un recurso importante para cualquier fuerza armada en situaciones de guerra ya que puede utilizarse para obtener nueva información, provocar errores en el contrincante, generar efectos entre los propios y los aliados. También es un buen elemento de propaganda política.

Tipos de noticias en la Guerra de Malvinas [editar]

- Las **noticias militares** son las que narran la Guerra desde el punto de vista estrictamente militar. Son expresadas por medio de comunicados y declaraciones y sus fuentes de información son institucionales. En ellas se relata, por ejemplo, el desplazamiento de tropas, posiciones de guerra, estrategias, etcétera.
- Las **noticias políticas** son genéricas y comprenden acciones políticas, declaraciones y decisiones emanadas de la Junta Militar. En este escenario interactúan los militares, políticos, empresarios.
- Las **noticias diplomáticas** son específicas y se dan en el espacio que se delimita entre el Ministerio de Relaciones Exteriores argentino y de las

Video: http://es.wikipedia.org.wiki/Guerra_de_las_Malvinas

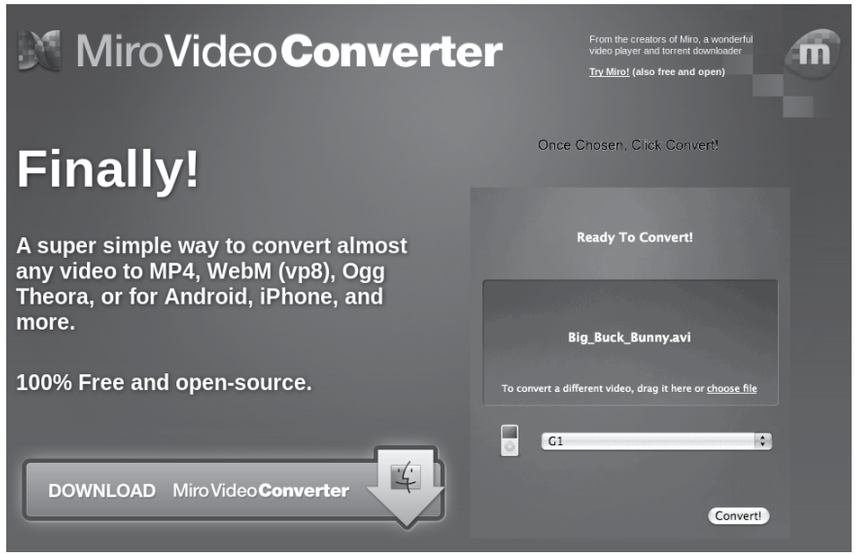
For now, Wikipedia is focused on captioning and contextualizing (largely through text) the photos, audio, and video as they appear. For example, the article 'Falklands War' in English and Spanish includes a long, freely licensed video clip from Argentinean television – Britain's opponent in the war. [17] The clip itself reflects some bias but is welcome because it is captioned and contextualized appropriately. As the communities defines NPOV policies for moving images, video will be especially obligated to have fair weight and contextualization through text annotation – including its production context and point of view.

Requirement 2: an Open–Source Video File

Moving images were stored first on paper, then film, then magnetic tape, but with the compact disk, originally used for digital audio, it became feasible to store digital video as well. Since that time, as Wikipedia notes, engineers, mathematicians, and scientists working on these technologies have addressed the 'complex balance between the video quality, the quantity of the data needed to represent it (also known as the bit rate), the complexity of the encoding and decoding algorithms, robustness to data losses and errors, ease of editing, random access, the state of the art of compression algorithm design, end-to-end delay, and a number of other factors'. [18]

For video to be made available to Wikipedia, it must be in open-source and royalty-free codecs. Many of the widely available video codecs to date have been owned or licensed by private interests who can control uses and associated costs, and thus they fall outside of the free-software requirements of the encyclopedia. [19]

17. Wikipedia contributors, 'Guerra de las Malvinas', http://es.wikipedia.org/wiki/Guerra_de_las_Malvinas.
18. Wikipedia contributors, 'Video codec', http://en.wikipedia.org/wiki/Video_codec.
19. Wendy Seltzer et al., 'Video Prison: Why Patents Might Threaten Free Online Video', 2 July 2010, http://oti.newamerica.net/blogposts/2010 video_prison_why_patents_might_threaten_free_online_video-33950.



The Miro Video Converter.

To date, the favored format for video contributions to the Wikimedia Commons is Ogg Theora. Theora is the most widely distributed open codec, but critics note that it is less efficient than proprietary solutions like H.264. In February 2010, progress in open-source video began to accelerate, and in mid-2010, Google, in partnership with Mozilla, Adobe, Opera, and others announced the WebM codec – an 'open, royalty-free, media file format' – built upon On2's VP8 video technology and Vorbis audio. In 2011 WebM will take hold as the de facto open-source codec on the web, overtaking Ogg Theora.

As of August 2010, the one million most popular YouTube videos are available in WebM, and YouTube will now support WebM for all uploaded videos. [20] By 2011, WebM video will be reliably playable in the newest versions of Firefox, Chrome, and Opera browsers, as well as Android mobile devices. Users of the latest Internet Explorer and Safari browsers will be able to install a simple piece of free software to enable playback. In 2011, the Adobe Flash player will also add support for the WebM codec, adding up to 1 billion new users to the WebM installed base. With broad industry support and quality that meets or exceeds the current industry standard H264 video, WebM is poised to become the next-generation video standard for the web. Wikimedia projects will soon support WebM as well as Theora.

Content on Wikipedia must be stored using open technology formats, again to insure that no license fees for technology will ever be owed by the Wikimedia Foundation or any users downstream. Fortunately, embracing open formats is a relatively trivial task, and the con-

20. http://www.webmproject.org/; http://webmproject.blogspot.com/; http://www.theregister.co.uk/2010/06/19/google_adds_vp8_experimental_branch/; http://www.masternewmedia.org/the-video-encoding-guide-codecs-formats-containers-and-settings-explained/.

version of existing assets into open-formatted versions is easily added to most production or digitization workflows. For smaller contributors, the Wikipedia community already offers tools that automatically convert files from, for example, Quicktime and Flash, while uploading to the Wikimedia Commons archive. In 2010, as part of a campaign to encourage individual video contributions to the Commons, the Participatory Culture Foundation developed and released the free Miro Converter that creates Wikimedia-ready files from almost any existing asset with no prior technical knowledge necessary. The Wikipedia community has embraced the Converter, and any user who wants to upload open-video formats can do so with the push of a button. [21]

Requirement 3: A Free and Open License

Legal and business issues involved in clearing video for online use constitute a tricky thicket. Behind every minute of video, especially professionally produced video, can lie a galaxy of extraordinary creative talent, production skill, and technical expertise – and behind that another galaxy of contracts and agreements representing thousands of dollars of investment and possible payouts for producers, directors, cinematographers, cameramen, photographers, film and video editors, writers of scripts, writers of songs, writers of music, actors, singers, musicians, dancers, choreographers, narrators, animators, puppeteers, and entire worlds of content from music and book publishing and the film business who may have sold or otherwise licensed rights to the production, and then too the dozens, sometimes hundreds, of artists, designers, engineers, and others who helped to make productions complete the journey from idea to finished work.

These creators and producers often have business contracts describing the compensation, credits and the rights they have licensed to their work for specific media uses (television, radio, DVD, online, for example) and, even in this broadly networked world, autonomous 'territories' (such as North America). They are often represented by unions and guilds that engage in collective bargaining with networks and producers to determine pay scales and equity participation. Many of the classic films and television programs that we know as our common cultural reference points are governed by contracts several decades old – 'heavily guilded' agreements, concluded well before the internet. In order to put this material online – to say nothing of its availability for download and reuse – we have to work through these agreements with content owners and producers.

Wikipedia's policies for moving images are still in the earliest stages of formation in mid-2010, but they are governed by rights policies that all Wikipedia additions and edits must adhere. These policies on rights rules state:

> Most of Wikipedia's text and many of its images are co-licensed under the Creative Commons Attribution-Sharealike 3.0 Unported License (CC-BY-SA) and the GNU Free Documentation License (GFDL) (unversioned, with no invariant sections, front-cover texts, or back-cover texts). Some text has been imported only under CC-BY-SA and CC-BY-SA-compatible license and cannot be reused under GFDL; such text will be identified either on the page footer, in the page history or the discussion page of the article that utilizes the text. Every image has a description page which indicates the license under which it is released or, if it is non-free, the rationale under which it is used.
>
> The licenses Wikipedia uses grant free access to our content in the same sense that free software is licensed freely. Wikipedia content can be copied, modified, and redistributed if and only if the copied version is made available on the same terms to others and acknowledgment of the authors of the Wikipedia article used is included (a link back to the article is generally thought to satisfy the attribution requirement; see below for more details). Copied Wikipedia content will therefore remain free under appropriate license and can continue to be used by anyone subject to certain restrictions, most of which aim to ensure that freedom. [22]

21. http://www.mirovideoconverter.com/.

There are six major Creative Commons licenses:

– Attribution (CC-BY)
– Attribution Share Alike (CC-BY-SA)
– Attribution No Derivatives (CC-BY-ND)
– Attribution Non-Commercial (CC-BY-NC)
– Attribution Non-Commercial Share Alike (CC-BY-NC-SA)
– Attribution Non-Commercial No Derivatives (CC-BY-NC-ND)

Each Creative Commons license is a configuration of the following four conditions: Attribution (BY), where use of the material requires attribution to the original author; Share Alike (SA), where derivative works can be produced under the same or a similar license; Non-Commercial (NC), where the work can be used for commercial purposes; and No Derivative Works (ND), where only the original work can be transmitted, without derivatives. As of the current versions, all Creative Commons licenses allow the 'core right' to redistribute a work for non-commercial purposes without modification. The exercise of NC and ND options, however, make a work non-free. [23]

CC licenses permit attribution 'in the manner specified' by the asset owner. Any institution can specify a robust or detailed attribution scheme, although the Wikipedia community may decline to use an asset on a given page if it comes with an onerous set of requirements. (As a rule, simple is good.) Furthermore, institutions that wish to maintain certain customized business models may also consider dual or non-exclusive licensing, details for which can be found online. [24]

22. Wikipedia contributors, 'Wikipedia:Copyrights', http://en.wikipedia.org/wiki/Wikipedia:Copyrights.
23. http://openvideoalliance.org/video-for-the-open-web/.
24. http://wiki.creativecommons.org/Frequently_Asked_Questions#Can_I_still_make_money_from_a_work_I_make_available_under_a_Creative_Commons_licenses.3F.

The Wikimedia community encourages its video content be cleared without restriction, for attribution/share-alike licensing. Multimedia files are obviously more complex than text files, however, and often a single video clip can have multiple rights holders. All components of the clip should be cleared – the video footage, sounds and music, images, likenesses. These component licenses need to be compatible with each other and with other content in the encyclopedia. That said, the Wikipedia community recognizes that video will remain – for a time – a subsidiary component of a text-centric encyclopedia. Because incorporated texts are de facto 'derivative works' once they are edited, they all are made available under one license – CC-BY-SA. As long as multimedia remains a standalone piece within a larger textual article, the community will allow a broader set of free licenses – public domain and CC-BY among them – to govern.

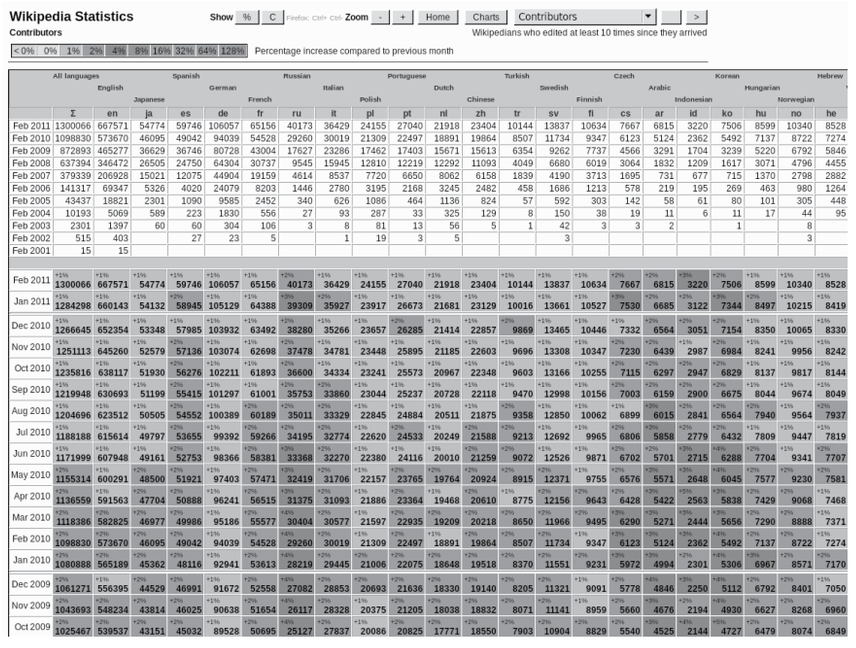
Over time, multimedia will be seen and edited in video editing software timelines and sequencers. These components also will be tagged – manually at first and then increasingly via automated methods that have yet to be fully determined. As with many tagging processes on Wikipedia, solutions will be developed collaboratively by the community. [25]

As cultural and educational institutions add masses of moving images to the site, much as leadership institutions have with static images, [26] they may need to develop a more mechanical, semi-automated solution for digitizing analog film and video assets. Staging areas or 'skunkworks' environments for experimentation with formats, automated tagging, automated captioning, and other aspects of moving image provision will proliferate (and opportunities for service providers in these areas are likely to be substantial).

Risks: the Public Changes the Original Work

The risks of putting audiovisual assets – powerful and memorable as they can be – online, and then online for download, and then again online for reuse are theoretically significant.

25. Wikipedia contributors, 'Image copyright tags', http://en.wikipedia.org/wiki/Wikipedia_talk:Image_copyright_tags.
26. Rights challenges for cultural and educational institutions putting material online – especially for education and free formats – are substantial. See: William W. Fisher and William McGeveran, *The Digital Learning Challenge: Obstacles to Educational Uses of Copyrighted Material in the Digital Age,* Cambridge: Harvard Law School Berkman Center for Internet & Society, 10 August 2006, http://cyber.law.harvard.edu/publications/2006/The_Digital_Learning_Challenge; William Fisher's presentation at Intelligent Television's May 2006 conference at MIT, 'The Economics of Open Content', http://forum-network.org/partner/intelligent-television; Kenneth D. Crews and Melissa A. Brown, 'Control of Museum Art Images: The Reach and Limits of Copyright and Licensing', http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1542070. The leading resource for the field is Peter Hirtle, Emily Hudson, and Andrew T. Kenyon, *Copyright and Cultural Institutions: Guidelines for Digitization for U.S. Libraries, Archives and Museums,* Ithaca: Cornell University Library, 2009, http://ecommons.cornell.edu/handle/1813/14142. Government and foundation funders are beginning to study these issues directly. See, for example, Phil Malone, *An Evaluation of Private Foundation Copyright Licensing Policies, Practices and Opportunities,* Cambridge: Berkman Center for Internet & Society, Harvard University, August 2009, http://cyber.law.harvard.edu/publications/2009/Open_Content_Licensing_for_Foundations.



Wikipedia Statistics

Show % C Firefox: Ctrl+ Ctrl- Zoom - + Home Charts Contributors

Contributors

Wikipedians who edited at least 10 times since they arrived

< 0% 0% 1% 2% 4% 8% 16% 32% 64% 128% Percentage increase compared to previous month

	Σ	en	ja	es	de	fr	ru	it	pl	pt	nl	zh	tr	sv	fi	cs	ar	id	ko	hu	no	he
	All languages	English	Japanese	Spanish	German	French	Russian	Italian	Polish	Portuguese	Dutch	Chinese	Turkish	Swedish	Finnish	Czech	Arabic	Indonesian	Korean	Hungarian	Norwegian	Hebrew
Feb 2011	1300066	667571	54774	59746	106057	65156	40173	36429	24155	27040	21918	23404	10144	13837	10634	7667	6815	3220	7506	8599	10340	8528
Feb 2010	1098830	573670	46095	49042	94039	54528	29260	30019	21309	22497	18891	19864	8507	11734	9347	6123	5124	2362	5492	7137	8722	7274
Feb 2009	872893	465277	36629	36746	80728	43004	17627	23286	17462	17403	15671	15613	6354	9262	7737	4566	3291	1704	3239	5220	6792	5846
Feb 2008	637394	346472	26505	24750	64304	30737	9545	15945	12810	12219	12292	11093	4049	6680	6019	3064	1832	1209	1617	3071	4796	4455
Feb 2007	379339	206928	15021	12075	44904	19159	4614	8537	7720	6650	8062	6158	1839	4190	3713	1695	731	677	715	1370	2798	2882
Feb 2006	141317	69347	5326	4020	24079	8203	1446	2780	3195	2168	3245	2482	458	1686	1213	578	219	195	269	463	980	1264
Feb 2005	43437	18821	2301	1090	9585	2452	340	626	1086	464	1136	824	57	592	303	142	58	61	80	101	305	448
Feb 2004	10193	5069	589	223	1830	556	27	93	287	33	325	129	8	150	38	19	11	6	11	17	44	95
Feb 2003	2301	1397	60	60	304	106	3	8	81	13	56	5	1	42	3	3	2		1		8	
Feb 2002	515	403		27	23	5		1	19	3	5			3							3	
Feb 2001	15	15																				
Feb 2011	1300066	+1% 667571	+1% 54774	+1% 59746	+1% 106057	+1% 65156	+3% 40173	+1% 36429	+1% 24155	+1% 27040	+1% 21918	+1% 23404	+1% 10144	+1% 13837	+1% 10634	+2% 7667	+2% 6815	+3% 3220	+2% 7506	+1% 8599	+1% 10340	+1% 8528
Jan 2011	1284298	+1% 660143	+1% 54132	+2% 58945	+1% 105129	+1% 64388	+3% 39309	+2% 35927	+1% 23917	+1% 26673	+1% 21681	+1% 23129	+1% 10016	+1% 13661	+1% 10527	+3% 7530	+2% 6685	+2% 3122	+3% 7344	+2% 8497	+1% 10215	+1% 8419
Dec 2010	1266645	+1% 652354	+1% 53348	+1% 57985	+1% 103932	+1% 63492	+2% 38280	+1% 35266	+1% 23657	+2% 26285	+1% 21414	+1% 22857	+2% 9869	+1% 13465	+1% 10446	+1% 7332	+2% 6564	+2% 3051	+2% 7154	+1% 8350	+1% 10065	+1% 8330
Nov 2010	1251113	+1% 645260	+1% 52579	+2% 57136	+1% 103074	+1% 62698	+2% 37478	+1% 34781	+1% 23448	+1% 25895	+1% 21185	+1% 22603	+1% 9696	+1% 13308	+1% 10347	+2% 7230	+2% 6439	+1% 2987	+2% 6984	+1% 8241	+1% 9956	+1% 8242
Oct 2010	1235816	+1% 638117	+1% 51930	+2% 56276	+1% 102211	+1% 61893	+2% 36600	+1% 34334	+1% 23241	+1% 25573	+1% 20967	+1% 22348	+1% 9603	+1% 13166	+1% 10255	+2% 7115	+2% 6297	+2% 2947	+2% 6829	+1% 8137	+1% 9817	+1% 8144
Sep 2010	1219948	+1% 630693	+1% 51199	+2% 55415	+1% 101297	+1% 61001	+2% 35753	+2% 33860	+1% 23044	+1% 25237	+1% 20728	+1% 22118	+1% 9470	+1% 12998	+1% 10156	+2% 7003	+2% 6159	+2% 2900	+2% 6675	+2% 8044	+1% 9674	+1% 8049
Aug 2010	1204696	+1% 623512	+1% 50505	+2% 54552	+1% 100389	+2% 60189	+2% 35011	+2% 33329	+1% 22845	+1% 24884	+1% 20511	+1% 21875	+2% 9358	+1% 12850	+1% 10062	+1% 6899	+3% 6015	+2% 2841	+2% 6564	+2% 7940	+1% 9564	+2% 7937
Jul 2010	1188188	+1% 615614	+1% 49797	+2% 53655	+1% 99392	+2% 59266	+2% 34195	+2% 32774	+1% 22620	+1% 24533	+1% 20249	+2% 21588	+2% 9213	+1% 12692	+1% 9965	+2% 6806	+3% 5858	+2% 2779	+2% 6432	+2% 7809	+1% 9447	+1% 7819
Jun 2010	1171999	+1% 607948	+1% 49161	+2% 52753	+1% 98366	+2% 58381	+3% 33368	+2% 32270	+1% 22380	+2% 24116	+1% 20010	+2% 21259	+2% 9072	+1% 12526	+1% 9871	+2% 6702	+2% 5701	+3% 2715	+4% 6288	+2% 7704	+1% 9341	+2% 7707
May 2010	1155314	+2% 600291	+1% 48500	+2% 51921	+1% 97403	+2% 57471	+3% 32419	+2% 31706	+1% 22157	+2% 23765	+3% 19764	+2% 20924	+1% 8915	+3% 12371	+1% 9755	+2% 6576	+3% 5571	+4% 2648	+4% 6045	+2% 7577	+2% 9230	+3% 7581
Apr 2010	1136559	+2% 591563	+1% 47704	+2% 50888	+2% 96241	+1% 56515	+2% 31375	+3% 31093	+2% 21886	+1% 23364	+2% 19468	+3% 20610	+1% 8775	+2% 12156	+2% 9643	+2% 6428	+3% 5422	+5% 2563	+3% 5838	+2% 7429	+2% 9068	+1% 7468
Mar 2010	1118386	+2% 582825	+2% 46977	+2% 49986	+1% 95186	+2% 55577	+4% 30404	+2% 30577	+1% 21597	+2% 22935	+3% 19209	+2% 20218	+2% 8650	+2% 11966	+2% 9495	+3% 6290	+3% 5271	+3% 2444	+5% 5656	+2% 7290	+2% 8888	+1% 7371
Feb 2010	1098830	+2% 573670	+2% 46095	+2% 49042	+1% 94039	+2% 54528	+4% 29260	+2% 30019	+1% 21309	+2% 22497	+1% 18891	+2% 19864	+2% 8507	+2% 11734	+1% 9347	+3% 6123	+3% 5124	+3% 2362	+4% 5492	+2% 7137	+2% 8722	+1% 7274
Jan 2010	1080888	+2% 565189	+2% 45362	+2% 48116	+1% 92941	+2% 53613	+4% 28219	+2% 29445	+2% 21006	+2% 22075	+3% 18648	+2% 19518	+2% 8370	+2% 11551	+2% 9231	+3% 5972	+3% 4994	+3% 2301	+4% 5306	+2% 6967	+2% 8571	+1% 7170
Dec 2009	1061271	+2% 556395	+1% 44529	+2% 46991	+1% 91672	+2% 52558	+4% 27082	+2% 28853	+2% 20693	+2% 21636	+2% 18330	+2% 19140	+2% 8205	+2% 11321	+2% 9091	+2% 5778	+4% 4846	+3% 2250	+4% 5112	+2% 6792	+2% 8401	+1% 7050
Nov 2009	1043693	+2% 548234	+2% 43814	+2% 46025	+1% 90638	+2% 51654	+4% 26117	+2% 28328	+1% 20375	+2% 21205	+2% 18038	+2% 18832	+2% 8071	+2% 11141	+1% 8959	+2% 5660	+3% 4676	+2% 2194	+4% 4930	+2% 6627	+2% 8268	+2% 6960
Oct 2009	1025467	+2% 539537	+2% 43151	+2% 45032	+1% 89528	+2% 50695	+4% 25127	+2% 27837	+1% 20086	+2% 20825	+2% 17771	+2% 18550	+2% 7903	+2% 10904	+2% 8829	+2% 5540	+3% 4525	+4% 2144	+3% 4727	+2% 6479	+2% 8074	+2% 6849

Wikipedia Chart of Contributors, http://stats.wikimedia.org/EN/TablesWikipediansContributors.htm, accessed 10 August 2010

First is fear that video users will misappropriate the video, especially if it includes iconic imagery, and perhaps publish that video to promote purposes that the source institution, creator, or owner would not agree with. Other hazards include opening comments to pranksters, cranks, and liars, and to individuals and groups whose intentions are not entirely noble. The prospect of diminishing the value of the original work is very real.

Wikipedia is a dynamic environment, however; the site itself speaks of how 'Wikipedia is continually updated, with the creation or updating of articles on historic events within hours, minutes, or even seconds, rather than months or years for printed encyclopedias'. Over 90,000 contributors are at work on the site, primarily with text entries. As video matures, and the technological sophistication of editors specializing in video catches up, thousands of volunteer editors will be able to correct mistakes and graffiti and specifically patrol the video contributions with the same or better efficiency as with other media.

The larger issue involves unease on the part of cultural and educational institutions toward downloads and reuse of their videos, especially iconic ones. Institutions will cede exclusive control of the distribution of their content, no question. As of mid-2010, simple and free technology exists for every computer user to capture and download streaming – sometimes promoted as 'streaming-only' – video at the click of a button. 'Streaming-only' or digitally-protected video is thus a technological mirage. Cultural and educational institutions with video online (or on physically distributed media such as DVDs) have noted that low-quality

versions of their material sometimes appear on YouTube and elsewhere. If an institution is participating in promoting itself online, it is exposed to the risk of engaging with the public already – their use and misuse not only of videos, but of its logos, images, and basic digital identity. This is a fact of online life. [27]

An alternative set of questions may revolve around whether the wisdom of the crowd might not improve institutional presence. [28] Wikipedia can be considered a testing ground for the wider web, and the attitudes of cultural and educational institutions toward adding material will be shaped by, and in turn shape, their attitudes toward online public communication. And, to this point, institutions that contribute video to Wikipedia and the Wikimedia Commons are shaping and contextualizing the ways their video can be encountered on the web.

Rewards: Attribution, Analytics, and Participation

With tens of millions of unique visitors a day, Wikipedia is one of the ten most trafficked sites in the world. Citations in the encyclopedia that link to cultural and educational institutions regularly account for heavy traffic to those institutions' websites. In April 2010, for one example, the New York Public Library provided this research effort with top referral sources for its online image gallery. Google Images and Google.com ranked first and third, respectively; the official site of the city of New York ranked second; and Wikipedia ranked fourth.

The dynamics are often similar for other cultural and educational institutions. Wikipedia is now developing attribution protocols for how articles with moving images can link to cultural and educational institutions. Among the issues discussed by the Wikipedia community for text-based referrals are: should links be only to institution home pages? Can other stable URLs be included, such as web pages for important collections within a library? Can links be provided to item-level URLs? As images in the encyclopedia are slowly replaced with moving images, will links be provided directly from the image on view, or will they need to be pushed to the bottom of the article bibliography? There will be the possibility to provide hyperlinks to sources from the videos themselves as they are playing, [29] cause for Wikipedia policy formations to percolate even further. Stakes will rise if and when video is featured on Wikipedia's daily main page, which can receive as many as 30 million views a day.

Cultural and educational institutions have the opportunity to determine how Wikipedia policies evolve by joining in the discussions as they unfold. Such discussions – taking place among technologists keen to advance public education – are likely to inform additional decisions on the part of these institutions as they develop their own policies for moving image citations. Wikipedia analytics are transparent and available to all, but it may be possible

27. Grimmelman.
28. See James Surowiecki's presentation at Intelligent Television's symposium, 'The Economics of Open Content', http://forum-network.org/lecture/economics-open-content-keynote; and Roy Rosenzweig, 'Can History Be Open Source? Wikipedia and the Future of the Past', *The Journal of American History* (June 2006), http://www.historycooperative.org/cgi-bin/justtop.cgi?act=justtop&url=http://www.historycooperative.org/journals/jah/93.1/rosenzweig.html.
29. http://www.drumbeat.org/project/webmademovie.

down the road for highly active contributors of video to customize analytical information that suits their purposes for given clips.

In addition to these rewards, Wikipedia is two-way street. [30] As funding remains a challenge for many institutions, engaging with the 'wisdom of the crowd' may bring enough benefits that the experience as a whole is cost-effective. While there have been several high-profile efforts to establish the right kind of 'media commons' for libraries and museums – the Library of Congress's work with Flickr and the 2010 launch of the Smithsonian Commons, to name two – none have the immediate benefit of enlisting thousands of volunteers and millions of users from the get-go. Wikipedia and other public commons in effect stimulate volunteer value-creation for collections and objects that could go unpublicized for ages. Part of the value-add is metadata for moving image collections – critical for those who administer large-scale collections. [31] Indeed, by working with Wikipedia, institutions are helping to make their rich media assets machine-readable – perhaps the key objective for those in the business of making collections accessible and involved in fundraising. [32]

By participating in the web's great video conversation, cultural and educational institutions have the ability to engage the public, increase the online visibility of the institution's media, educate people, enable fortuitous discovery, and even facilitate business opportunities for clip and image licensing. Finally, once definitive information is added to Wikipedia from a venerable institutional source, the information is likely to reach millions who might not otherwise have seen it. [33]

Conclusion: Making Media Truly Public

> Knowledge is a form of capital that is always unevenly distributed, and people who have more knowledge, or greater access to knowledge, enjoy advantages over people who have less. This means that knowledge stands in an intimate relation to power. [34]

30. See Erik Moeller's blogs on this point, http://blog.wikimedia.org/2010/enriching-wikimedia-commons-a-virtuous-circle/.
31. On crowdsourcing metadata for institutional audiovisual assets, see Johan Oomen, 'Engaging Users in a Shared Information Space', *Proceedings of WebSci10* (April 26-27), http://journal.webscience.org/337/; 'Audiovisual Preservation Strategies, Data Models and Value-Chains' (2010), http://tinyurl.com/prestoprime; and the Corporation for Public Broadcasting's emerging PBCore system at http://pbcore.org/2.0/. The swarm is wise. See: Stuart D. Lee and Kate Lindsay, 'If You Build It, They Will Scan: Oxford University's Exploration of Community Collections', *Educause Quarterly* 32, No. 2 (2009), http://www.educause.edu/EDUCAUSE+Quarterly/EDUCAUSEQuarterlyMagazineVolum/IfYouBuildItTheyWillScanOxford/174547; http://www.nla.gov.au/openpublish/index.php/nlasp/article/viewArticle/1406; and http://www.benkler.org/.
32. Michael Jensen, 'The New Metrics of Scholarly Authority', *Chronicle of Higher Education* (15 June 2007), http://chronicle.com/article/The-New-Metrics-of-Scholarly/5449; Kaufman and Albon, *Funding Media, Strengthening Democracy*.
33. Noam Cohen, 'Venerable British Institution Enlists in the Wikipedia Revolution', *The New York Times*, 4 June 2010, http://www.nytimes.com/2010/06/05/arts/design/05wiki.html.
34. Menand, p. 13.

A New Cultural Imperative

Encouraging students and lifelong learners to become fluent in video and sound resources is a new cultural imperative for those who toil in the knowledge industries. [35] Scholars applying their skills in university, library, museum, and archive production centers now articulate the importance of teaching and learning in video – the dominant medium of the 21st century – as opposed to text alone. Contributing to such progress may well be part of the missions of many of the institutions we discuss.

To be sure, media scholars and philosophers from Walter Benjamin to Walter Ong and Mashall McLuhan foresaw some of this – a world where film and sound proficiency would deepen global knowledge and self-awareness. [36] This interpretation looks forward and back – back to the history of early screen culture when the first cinema consumers (encouraged by producers) multitasked endlessly, interacting with the screen, lecturers, musicians, and audience members throughout the picture. [37] It thus may be that sitting alone and quietly in front of images that are not reusable has been an aberrant period in the development of screen culture.

As institutions' experiments or pilots with Wikipedia take root, they must consider what hurdles – financial, technical, legal – present themselves as barriers between that content and an online public. Open video and the movement it represents are closer to the original spirit of public media than indeed some of the public media players active today. As institutions collect and publish their strategic reviews for the years ahead, [38] they should consider their relations to Wikipedia and open video.

35. http://sca.jiscinvolve.org/wp/2010/07/22/out-now-digital-content-quarterly-issue-3/
36. Walter Benjamin, 'The Author as Producer: Address at the Institute for the Study of Fascism, Paris, April 27, 1934', in Benjamin *The Work of Art in the Age of its Technological Reproducibility and Other Writings on Media,* Cambridge: Harvard University Press, 2008, pp. 79-95; Walter J. Ong*, Orality and Literacy,* London: Routledge, 1982; and Marshall McLuhan, *Understanding Media: The Extensions of Man,* New York: McGraw Hill, 1964.
37. '[D. W.] Griffith's incessant adding and subtracting of footage implies that he saw these films as essentially open texts, capable of showing one face to Boston and another to New York.… By the late silent period, exhibitors could choose alternate endings for a number of major films. Some audiences, viewing Garbo as Anna Karenina in Clarence Brown's LOVE (1927), saw Anna throw herself under a train. Other theaters showed Anna happily reunited with Count Vronsky. King Vidor shot seven endings for THE CROWD and apparently issued it with two…
Richard Koszarski, *An Evening's Entertainment: The Age of the Silent Feature Picture, 1915-1928*, Berkeley: University of California Press, 1990. See also: Eileen Bowser, *The Transformation of American Cinema 1907-1915,* Berkeley: University of California Press, 1990.
38. The Smithsonian Institution strategic plan 2010-1015, http://www.si.edu/about/; the Library of Congress strategic plan 2008-2013, http://www.digitalpreservation.gov/pdf/OSI_StrategicPlan.pdf; and the Corporation for Public Broadcasting's strategic plan 2006-2011, www.cpb.org/oig/reports/strategicplan_06_11.pdf.

The Bigger Picture

What is the potential of a vast commons of openly licensed educational and cultural material? For institutions, it arguably opens new ways of engaging with individuals, new methods of distribution, and new models of preservation. It also represents possibilities for a new model of learning based on audiovisual literacy and fluency. Many of the great messages of the 20th and 21st centuries have been expressed in moving images, and so it is important that classroom learning adapts to this reality.

Cicero has been quoted as saying that 'freedom is participation in power'. In that light, it is good to note that the technologies of written literacy are fairly evenly distributed and available to individuals to both read and write. Too much of audiovisual discourse, however, remains read-only – the platforms, the software, the hardware, the modes of learning – and the laws around the moving image are more restrictive than they are with text. Imagine if quoting Cicero, as we have here, had required the processing and permissions rigmarole that clipping and quoting a Martin Luther King Jr. video still does today!

Open video on Wikipedia is not simply a call to store free media fragments online. It augurs a vision of teaching, learning, and creative and political discourse reflecting the full cycle of human communication today. With its millions of users, its base of community trust, and its commitment to freedom, Wikipedia is the largest and most popular repository of freely licensed communications content on the internet. It is not YouTube, owned by a private (if publicly held) company; Europeana or Communia or the BBC Archive, underwritten by governments; or the Internet Archive, run by a single philanthropist – amazing as all these sites are. It is committed to education, free expression, and social improvement, which is why the rules governing experimentation on its platform, if sometimes arcane, are so important to follow. [39]

When a vast commons of openly licensed educational and cultural material is available, the life cycle of a particular media clip becomes extraordinarily interesting. The clip is made available, it is used and reused in ways both predicted and unexpected, and it builds value for itself and for the users that it influences and whom it touches. When made available freely, and its derivative works as well, and so on down the line, it lives the life cycle of a great idea, and we all know how powerful ideas can be.

The issues at stake, of course, thus involve the larger context of building a free and informed society – and this at a time when so many of the information sources available are in fact no longer objective or free to use. Without referring to online video, philosopher Jurgen Habermas, for one example, speaks about the ways we are able now, as never before, to directly and positively affect the power structure of the public sphere and deliberative poli-

39. On the fuller significance of this 'reorientation of knowledge and power', still 'incomplete and emergent', see Christopher Kelty, *Two Bits: The Cultural Significance of Free Software,* Durham: Duke University Press, 2008, http://kelty.org/publications/; and James Boyle, *The Public Domain: Enclosing the Commons of the Mind,* New Haven: Yale University Press, 2008, http://jamesboyle.com/.

tics worldwide through the production and redistribution of media.[40] Wikipedia is in many ways a sandbox – or, more hopefully, a proxy – for the future of free (free as in freedom) communication.

If one focuses on this objective of building a better society, as many of the writers, thinkers, and activists cited in this paper do today, then work with media, technology, and the public grows more significant. What we are moving toward is no less than a fresh organization of the screen that is at once a university, library, museum, and collective sandbox.

As Wikipedians often indicate, that day is coming, and we all shall have it.

40. Jurgen Habermas, 'Political Communication in Media Society – Does Democracy still Enjoy an Epistemic Dimension? The Impact of Normative Theory on Empirical Research', 2006, http://www.habermasforum.dk/index.php?type=news&text_id=341.

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A JOURNEY FROM ROUGH CONSENSUS TO POLITICAL CREATIVITY: INSIGHTS FROM THE ENGLISH AND GERMAN LANGUAGE WIKIPEDIAS

JOHANNA NIESYTO

Departure: Rough Consensus

'We reject kings, presidents and voting. We believe in rough consensus and running code'. This well-known phrase coined by David D. Clark in July 1992 at the 24th annual Internet Engineering Task Force conference is not only printed on geeky T-shirts. Within net cultures, it has become a mantra for those particularly interested in working systems and in the prevailing views of those who keep the system running. It is not surprising then that less than 20 years later, consensus in Wikipedia, at least in the English language version, is said to be 'the primary way in which editorial decisions are made'.[1] Hence Clark's mantra of rough consensus seems to be deeply inscribed into Wikipedia principles for conflict resolution, implying that conflict can be resolved.

Funnily, the Wikipedia article in the English language version about [[en:rough_consensus]][2] links on its top to the page [[en:Wikipedia:ROUGH_CONSENSUS#Rough_consensus]], a section within the Wikipedia deletion guidelines for administrators in which consensus and rough consensus are used synonymously:

> Administrators must use their best judgment, attempting to be as impartial as is possible for a fallible human, to determine when rough consensus has been reached. [...] Consensus is not determined by counting heads, but by looking at strength of argument, and underlying policy (if any). Arguments that contradict policy, are based on opinion rather than fact, or are logically fallacious, are frequently discounted. [...]. Wikipedia policy requires that articles and information comply with core content policies (verifiability, no original research or synthesis, neutral point of view, copyright, and biographies of living persons) as applicable. [...] Per WP:IAR [Wikipedia Ignores All Rules], a local consensus can suspend a guideline in a particular case where suspension is in the encyclopedia's best interests, but this should be no more common in deletion than in any other area.[3]

1. Wikipedia contributors, 'Wikipedia:Consensus', http://en.wikipedia.org/wiki/Wikipedia:Consensus. All quoted hyperlinks were accessed on 13 January 2011, except where otherwise stated.
2. The article citation in the body of this text is called Wiki syntax or Wiki markup, a markup used by the MediaWiki software to format a page on Wikipedia. For example [[en:rough_consensus]] refers to the article 'Rough Consensus'; see http://en.wikipedia.org/wiki/Help:Wiki_markup.
3. Wikipedia contributors, 'Wikipedia:rough_consensus', http://en.wikipedia.org/wiki/Wikipedia:ROUGH_CONSENSUS#Rough_consensus.

Wikipedia policy

Principles

Five pillars
What Wikipedia is not
Ignore all rules

Content standards

Neutral point of view
Verifiability
No original research
Biographies of living persons
Article titles

Working with others

Civility
No personal attacks
Harassment
No legal threats
Consensus
Dispute resolution

More

List of policies
List of guidelines

Source: [[en:Template:Policy]].

Consensus is also formulated in the English language version as part of its conduct policies under the rubric 'Working with others'.

Compared to the English language version, the German language version does not have an equivalent meta page such as [[de:Wikpedia:Konsens]] that includes consensus under its conduct policy. This does not necessarily mean that consensus does not play a key role in the German language version's editing practice, since the German language meta page confirms it does, writing, 'Talk pages of controversial articles are used for example to build a consensus'. [4] Also, the meta page about key guidelines states that the guidelines themselves have been developed by practice or by consensus. [5] However, the difference between the English and German language versions is mirrored in the respective Wikipedia community portals. The German language version presents a separate rubric entitled 'Wikipedians' that includes a section called 'Conflicts' (in plural!). In contrast, the English language version's community portal presents a section called 'How to solve [sic!] conflicts' within the rubric 'guidelines, help & resources'.

This short journey through the meta pages reveals that rough consensus might not only be a guiding principle across language versions but is also shaped by them and made visible on different levels of activity. The question is, then, how is rough consensus articulated and put into practice on Wikipedia? To elaborate different accentuations on consensus, striking at first glance, I compare the English and German language versions, chosen because both language versions are quite similar in terms of history but differ culturally due to language and demographics.

The English and German language versions were the first two created; the English version started in 15 January 2001 [6] and the German in March 2001. [7] These versions also have the most articles today: the en-Wikipedia has more than three million articles, the de-Wikipedia

4. Wikipedia contributors, 'Wikipedia:Diskussionsseiten', http://de.wikipedia.org/wiki/Wikipedia:Diskussionsseiten, translation JN.
5. Ibid. Wikipedia contributors, 'Wikipedia:Grundprinzipien', http://de.wikipedia.org/wiki/Wikipedia:Grundprinzipien.
6. That is why the 15th of January is called the 'Wikipedia day', http://en.wikipedia.org/wiki/Wikipedia: Wikipedia_Day.
7. See Wikipedia-l, 'Alternative Language Wikipedias', http://lists.wikimedia.org/pipermail/wikipedia-l/2001-March/000049.html.

more than one million. [8] With eight and ten percent respectively, the bot [9] activity in article editing is fairly the same. [10] However, the communities of editors differ from each other. In terms of page edits per country, the en-Wikipedia consists of about 46 percent of users from the U.S., 16 percent from Great Britain, and 38 percents from other countries, such as Australia, India, or Germany, constituting a more heterogenic community than de-Wikipedia. In contrast, 83 percent of the German language versions' editors access the site from Germany. [11]

Our journey takes us through four 'stations' to illuminate accentuations of consensus in the two language versions. First, I reflect upon the notion of rough consensus, drawing on concepts developed in science and technology studies. Second, I compare discussions about the key Wikipedia principle, Neutral Point of View (NPOV), to show how the editors themselves grasp consensus. Third, the conflict over depictions of Muhammad in a Wikipedia article illustrates how article discussion pages frame consensus, primarily formulated through the NPOV principle. I only refer to discussion pages, since Wikipedians explicitly use them for consensus building when conflicts arise. Fourth, based on the findings, I point to the political character of rough consensus and argue for a politicized notion of knowledge coproduction in which conflict is not overridden by consensus. The conclusion opens vistas to link rough consensus to political creativity.

Station 1: Rough Consensus as Medium of Translation

The adjective 'rough' points to the fact that rough consensus is never fixed or defined in detail. In compliance with this stance, the English language Wikipedia highlights that consensus always remains open to change over time within the editing process. [12] Since rough consensus rejects the absolute, it leaves space for ambiguity and difference during coproduction. I read rough consensus productively against concepts developed for similar processes of coproduction in the field of science and technology studies, particularly 'boundary objects' and the 'standardization of methods'. These concepts focus on how people with various

8. For exact numbers, see Wikimedia/Eric Zachte: Wikipedia statistics. Comparisons (2010), http://stats.wikimedia.org/EN/Sitemap.htm#comparisons, and Eric Zachte: Growth per Wikipedia wiki (without date), http://stats.wikimedia.org/wikimedia/animations/growth/AnimationProjectsGrowthWp.html.
9. 'Bots are automated or semi-automated tools that carry out repetitive and mundane tasks', Wikipedia contributors, 'Wikipedia:Bots'. http://en.wikipedia.org/wiki/Wikipedia:Bots.
10. Wikimedia/Eric Zachte: Wikipedia statistics. Bot activity (2010), http://stats.wikimedia.org/EN/BotActivityMatrix.htm.
11. Wikimedia/Eric Zachte: Wikimedia Traffic Analysis Report - Page Edits Per Wikipedia Language – Breakdown (2010), http://stats.wikimedia.org/wikimedia/squids/SquidReportPageEditsPerLanguageBreakdown.htm. Please note that these numbers are based on server logs retrieved in the period 11/09 to 10/10. In doing so, identification mistakes may have occurred (e.g., the location of the provider may differ from the IP user's location. Also, this information does not say anything about the actual users' nationalities).
12. Wikipedia contributors, 'Wikipedia:Consensus', http://en.wikipedia.org/wiki/Wikipedia: Wikipedia:Consensus. For a discussion of consensus building in Wikipedia enriched with insights from communities using rough consensus and running code, see also Joseph Michael Reagle Jr., *Good Faith Collaboration. The Culture of Wikipedia*, Cambridge, MA/London: MIT Press, 2010, pp. 96-115.

backgrounds can contribute on one project, and the concepts were developed to analyze translation between different viewpoints – and in the end is not consensus in Wikipedia used for translate between viewpoints?

Susan Leigh Star and James R. Griesemer analyze how professionals and amateurs worked together to build a natural history research museum (the Berkeley Museum of Vertebrate Zoology) that focused on specification, migration, and the role of the environment in Darwinian evolution. The director of the museum, Joseph Grinnell, elaborated collection and curation guidelines allowing various allies to participate. This standardization provided a framework for how actors collected objects and documented information. In practice, amateurs were shown how to write field notes in a standardized way. Pointing to the *how* and not the *why* helped translate between diverging social worlds of amateurs and professionals. By doing so, amateurs were able to put down notes in a customized notebook and to follow recording guidelines that fulfilled standards of accuracy and comprehensive data. At the same time, this method kept the amateurs motivated to contribute: '[T]he allies enrolled by the scientist must be disciplined, but cannot be *overly*-disciplined'. [13] In this case, the simplification of standards translated into variety in the implementation of the collecting process, securing the participants' autonomy to a high degree.

In investigating the tension between diversity and collaboration, Star and Griesemer developed the analytical concept of boundary objects:

> [Boundary objects] both inhabit several intersecting social worlds [...] *and* satisfy the informational requirements of each of them. Boundary objects are both plastic enough to adapt local needs and the constraints of the several parties employing them, yet robust enough to maintain a common identity across sites. They are weakly structured in common use, and become strongly structured in individual-site use. They may be abstract or concrete. They have different meanings in different social worlds but their structure is common enough to more than one world to make them recognizable means of translation. [14]

Boundary objects may be (technical) objects but also ideas or concepts. While the standardized methods are fixed, boundary objects '[a]re not engineered as such by any one individual or group, but rather emerged through the process work' [15]. In the case of the Berkeley Museum of Vertebrate Zoology, boundary objects are the animal specimens to which different meanings were attached: for trappers, for example, they are sources of income; for the museum's staff they are exhibits.

13. Susan Leigh Star and James R. Griesemer, 'Institutional Ecology, "Translations" and Boundary Objects: Amateurs and Professionals in Berkeley's Museum of Vertebrate Zoology, 1907-1939', *Social Studies of Science* 19: 407, emphasis in original.
14. Ibid.: 393.
15. Ibid.: 408.

Since Wikipedia is built upon a 'merger' of open software and open culture, it has established rules for handling divergent positions on content. Translation between different viewpoints is covered in the Wikipedia content policy NPOV, which says, according to the English language version, that no article should be biased towards one position or another; rather, different points of views deemed significant should coexist. [16] The NPOV principle shows characteristics of both standardizing rule and boundary object. As a standardizing rule, it translates between different social and cultural worlds and across language versions. Similar to the collection and curating guidelines by Grinnell, the emergence of the NPOV principle is both a managerial decision by the Wikipedia founders about how to translate different social and cultural worlds, and an epistemic approach to shape the content of the lemmata. In his memoirs, Larry Sanger writes about the origins of the NPOV principle:

> Also, I am fairly sure that one of the first policies that Jimmy and I agreed upon was a 'nonbias' or neutrality policy. I know I was extremely insistent upon it from the beginning, because neutrality has been a hobby-horse of mine for a very long time, and one of my guiding principles in writing 'Sanger's Review'. Neutrality, we agreed, required that articles should not represent any one point of view on controversial subjects, but instead fairly represent all sides. [17]

As a standardized method, the NPOV has been interpreted as translating Ayn Rand's school of thought and other libertarian influences; [18] Cass Sunstein argues that the NPOV principle is Friedrich August von Hayek's market theory applied to encyclopedic policy. [19]

At the same time, the NPOV principle is also a boundary object that is actively edited across sites. It is contingent as editors attach different meanings to it in an ever-changing consensus about how to edit Wikipedia. The NPOV principle can not only be read as an epistemic stance embedded by Wikipedia founders Jimmy Wales and Larry Sanger, but also as an object that has, in Star and Griesemer's words, 'different meanings in different social worlds but their structure is common enough to more than one world to make them recognizable means of translation'. [20]

A closer look is required in order to analyze translations of this principle as well as how users actually put the NPOV principle into practice. The variety not only of adoptions but also of translations can then be read as traces of the different processes of reconciliation, negotiation, and conflicts deeply inscribed in the NPOV principle. In doing so, Wikipedia articles and

16. Wikipedia contributors, 'Neutral Point of View', http://en.wikipedia.org/wiki/Wikipedia:Neutral_Point_of_View.
17. Larry Sanger, 'The Early History of Nupedia and Wikipedia: A Memoir', 2005, http://features.slashdot.org/article.pl?sid=05/04/18/164213.
18. Joseph Michael Reagle Jr., *Good Faith Collaboration. The Culture of Wikipedia*, Cambridge, MA/London: MIT Press, 2010, pp. 57-58.
19. Cass R. Sunstein, *Infotopia: How Many Minds Produce Knowledge*, Oxford: Oxford University Press, 2006.
20. Susan Leigh Star and James R. Griesemer: 393.

their attached talk pages are understood as boundary objects. Similar to the specimen in the case of Star and Griesemer's analysis, users can attach multiple meanings to Wikipedia articles and find points of identification spanning across social worlds.

Station 2: Neutral Point of View | Neutraler Standpunkt

When investigating the NPOV principle there are a few questions at stake. How do Wikipedia editors themselves fill this principle with meaning? Is there one concept of consensus for translating between different viewpoints? To what extent do interpretations and practices differ and ruptures arise on the NPOV discussion pages on the Wikipedia meta site? To approach these questions, I use data and field notes collected at the Wikimania 2009 and 2010, 14 interviews conducted with users of the German and English Wikipedia, [21] and a quantitative analysis of 1,164 edits of the English language version's discussion page and 562 edits of the German language version's discussion page of the NPOV principle.

The NPOV principle is problematized through two competing approaches: a *scientific-based knowledge culture* and a *user-centric knowledge culture*. In the first, users attach the NPOV principle to a scientific culture of knowledge creation. Here the scientific community outside Wikipedia becomes the point of reference, i.e., Wikipedia should provide knowledge about what is published within the scientific community. On the de-discussion page of the NPOV principle, a key ongoing conversation asks what can and cannot be deemed science. In this discussion, one user explicitly claims that Wikipedia's content should be defined by external reference points:

> It's not us who decides what science concerning the content (methodology) is, we are only allowed to receive the findings. It's not us who quotes from the sciences in order to explain (better: our) reality, but we quote from the sciences how sciences explains its reality. If we don't give up this 'power', such mega-meta discussions will always continue to exist. But who has placed his opinions for years with the complicity of google, can be hardly convinced by me to having to take this step --Gamma 22:15, 4. Mär. 2008 (CET). [22]

While quoting different points of view is important, what matters is that these perspectives are taken from the 'sciences' where judgments on content quality are ideally derived. Users of this opinion often also believe in the universality of scientific knowledge, and therefore that content of the highest quality and verifiability should simply be translated to all language Wikipedias, causing a convergence of content into one primary Wikipedia. Users in favor of

21. In the interviews I included users with different roles, such as administrators or members of the Arbitration Committee, as well as users with editing experiences in different language versions. The discussion page analysis looked at the peaks of discussion page edits from the point of time when the site was created to 31 December 2009. I used Grounded Theory procedures in the line of Anselm Strauss to systematize users' understanding of the Neutral Point of View principle.
22. Wikipedia contributors 'Wikipedia_Diskussion:Neutraler:Standpunkt', http://de.wikipedia.org/wiki/Wikipedia_Diskussion:Neutraler:Standpunkt, translation JN.

a scientific-based knowledge culture consider the other core principles of Verifiability and No Original Research crucial, since content published in Wikipedia must relate to reliable scientific sources.

As a variant to this perspective, other users position NPOV not in relation to the scientific community, but to scientific *methods*. For them, the No Original Research principle becomes rather problematic as these users legitimate knowledge through an article's scientific handling, not its sources. If users follow so-called scientific methods, this view logically allows original research within Wikipedia. One user on the German language NPOV discussion page summarizes these differing interpretations:

> Sciences are a system of communication; what this system of communication refers to is said to be scientific (Fossa et al.), this is the position of the sociology of knowledge [...]. Science are methods; everyone who is using these methods, works scientifically (Nina et al.); this is the (not yet archived but sought) position of the philosophy of science [...]. [...] Geoz 18:59, 27. Feb. 2008 (CET). [23]

Going further, some users position CPOV within the framework of a user-centric knowledge culture. The main reference of knowledge creation then becomes the Wikipedia community itself, rather than externally cited scientific sources or applied scientific methods:

> Sure, like objectivity it's not perfect, you cannot self assess as whether you are completely neutral or unbiased because that is what bias is often. You're not aware of that. The problem of neutrality when there is only one author is big, there's a lot of potential for falling on the wrong side of it, being unintentionally biased. But when *there's a text that's multi-authored like Wikipedia*, the individual's bias will be washed out over time with other editors. And what you are left with is the average bias of the society and that average bias of the society will change over time with the long history of the article. [24]

From this viewpoint, coproduction is understood in line with Linus' Law that 'given enough eyeballs, all bugs are shallow', as different points of views are refined in the reviewing and re-editing process and different Wikipedia language communities diverge over what artifacts are considered notable and relevant.

However, despite an internal point of reference, reasonableness in Wikipedia as 'written by the people and for the people', still strongly adheres to No Original Research and Verifiability, as this user claims:

> In general, if we do not only consider scholarly contents, what is a reputable source should depend a lot on the viewpoint that is presented and how it is presented. For example, if a viewpoint is with no ambiguity clearly presented as the religious Catholic

23. Ibid.
24. witty lama, unpublished interview with Johanna Niesyto, 2009. Emphasis added.

> viewpoint, a publication from the Vatican would be perfectly fine. If the viewpoint is presented as a scientific viewpoint, for example if it is the viewpoint of an organization that presents itself as a scientific organization, then a reputable scientific publisher should be required. [...] The idea is not that a prominent adherant give any validity to the viewpoint. It is only a way to uniquely identify the viewpoint and *make sure that there is a good match between the actual viewpoint that is presented and what it claims to be*. I am just saying that this principle should be more explained in the NPOV policy -- it is already the idea of NPOV, but it should be better explained. It will make a good link with WP:NOR and WP:V. --Lumiere 15:00, 23 January 2006 (UTC). [25]

Both concepts – scientific-based and user-centric knowledge cultures – do not necessarily form an opposition but a continuum. While their reference points are different (for the former the reference point lies outside of Wikipedia, for the latter, inside) the iterative principle of allowing different viewpoints is the same for both. [26] For example, this NPOV discussion in the English language version centers around representations of viewpoints:

> Those who want to remove the term 'significant' in the first sentence do not want to remove the concept that views must be selected in proportion to the prominence of each. The fact that the view of a tiny minority does not have its place in Wikipedia, except in their own ancillary articles, is very clear in the Undue weight section and nobody wants to change that. Removing 'significant' in the first sentence will not change that. The problem with 'significant' is that it is not well defined. It is a new term that is not defined at all in the section. Concretely, the problem is that such a vague notion allows the suppression of any well sourced information. Why would someone wants to insist to have this power? --Lumière 16:39, 3 February 2006 (UTC). [27]

By contrast, the above discussion on the German language NPOV page is primarily concerned with how sciences can be defined and separated from pseudo-science; pseudo-science is exemplified as illegitimate articles such as 'Scientology', 'Creationism', or 'Evil Eye'.

To sum up, consensus on the German and English language versions is mutable and up to interpretation, leading to conflicts in the editing of an article [28] as user-centric and scientific-based knowledge cultures clash. As a boundary object, NPOV allows different interpretations,

25. 'Neutral Point of View', emphasis added.
26. Most prominently, the continuum of the scientific and user-centric knowledge cultures with its ruptures was visible in the ongoing debate between so-called inclusionists and exclusionists. In particular, in the German language Wikipedia, there has been a heated public debate about notability. simoncolumbus, 'Kann die Wikipedia alles für alle sein?', Netzpolitik, 30 December 2009, http://www.netzpolitik.org/2009/kann-die-wikipedia-alles-fuer-alle-sein. See also http://de.wikipedia.org/wiki/Wikipedia:Relevanzkriterien/Archiv.
27. Wikipedia contributors, 'Wikipedia_talk:Neutral_point_of_view', http://en.wikipedia.org/wiki/Wikipedia_talk:Neutral_point_of_view.
28. 'The main namespace or article namespace is the namespace of Wikipedia that contains the encyclopedia proper – that is, where Wikipedia articles reside'. http://en.wikipedia.org/wiki/Wikipedia:Main_namespace.

but this raises the question: Is the NPOV principle robust enough to 'maintain a common identity across sites'? [29] The depictions of Muhammad in Wikipedia will allow us to examine this question in depth.

Station 3: The Case of Muhammad Depictions – Remove vs. Keep

Consensus as 'working theory', as one user describes it on the English language NPOV discussion page, arises through controversy. However, Wikipedia functions also because many articles are non-contested; its discussion page might be empty or filled with undisputed suggestions. Hence, consensus is used 'to move forward on disagreements in practice --Taxman Talk 17:46, 24 January 2006 (UTC)' when heated debates arise. [30] The article about the prophet Muhammad is a prominent example of conflict in the English and German language versions, of how consensus is put into practice, and how scientific and user-centric knowledge cultures interpret NPOV.

In both versions, controversies arise as visual representations of Muhammad taken from medieval manuscripts clash with anconism, a current of Islam arguing that visual depictions of Muhammad encourage idolatry. [31] Given the heatedness of the conflict, the English version set up a discussion page devoted exclusively to this issue, [32] and the debate was taken to the 'institutional backbone' of Wikipedia: the Open Ticket Request System (OTRS). [33] While the German language OTRS also received petitions and e-mails mainly due to the media reports, [34] the English language OTRS went further to create 'info-en:Muhammad' for specifically handling questions. [35] This queue received more than 1,500 e-mails between 1 December 2007, and 1 March 2008, [36] perhaps due to the petition 'Remove the Illustrations of Muhammad from Wikipedia' written in English by Faraz Ahmad of Daska, formerly editing Wikipedia as Farazilu. His site collected more than 80,000 signatures by the beginning of February 2008 and led to media reports about the case.

29. Susan Leigh Star and James R. Griesemer: 393.
30. 'Wikipedia_talk:Neutral_point_of_view'.
31. This is also discussed in separate Wikipedia articles (see http://de.wikipedia.org/wiki/Bilderverbot_im_Islam, http://en.wikipedia.org/wiki/Aconism_in_Islam and http://en.wikipedia.org/wiki/Depictions_of_Muhammad).
32. Wikipedia contributors, 'Talk:Muhammad/images', http://en.wikipedia.org/wiki/Talk:Muhammad/images.
33. This system serves as a troubleshooter: a so-called Volunteer Response Team answers e-mails that are sent to Wikipedia, other Wikimedia projects, and the Wikimedia Foundation.
34. E.g., http://www.nytimes.com/2008/02/05/books/05wiki.html?_r=1&ref=noamcohen and http://www.focus.de/digital/internet/wikipedia_aid_236633.html.
35. 'Talk: Muhammad/images'.
36. This information was retrieved from e-mail communication between members of the German chapter and the Wikimedia Foundation and me about the Muhammad depiction case.

log in

care2 petitionsite Care2 | petitionsite | browse petitions | start a petition | my petitionsite | help

Remove the Illustrations of Muhammad from Wikipedia

This petition is now closed.
Please take action on these important issues below.

signatures: 454,129

signature goal: 10,000

share this action

overview | petition

Target: To request wikipedia editors to respect other peoples religion
Sponsored by: Muslim Unity

In Islam picture of Prophet Muhammad (PBUH) and other Humans are not allowed. But Wikipedia editors are showing illustrations with face illustrated and face is veiled or white washed. But still they are offensive to Muslims. I request all brothers and sisters to sign this petitions so we can tell Wikipedia to respect the religion and remove the illustrations.

http://en.wikipedia.org/wiki/Muhammad
http://en.wikipedia.org/wiki/Depictions_of_Muhammad

I created a blog to keep personal opinions and other things separate so if u has any personal opinion or idea to share visit http://the-petition.blogspot.com/
all suggestions are welcome.

we signed **"Remove the Illustrations of Muhammad from Wikipedia"**

# 455,209	**13:21, Aug 08, Abdullah Shahab Hekmatyar, Afghanistan** In Islam picture of Prophet Muhammad (PBUH) and other Humans are not allowed. But Wikipedia editors are showing illustrations with face illustrated and face is veiled or white washed. But still they are offensive to Muslims. I request all brothers and sisters to sign this petitions so we can tell Wikipedia to respect the religion and remove the illustrations.
# 455,208	**08:02, Aug 08, Name not displayed, Malaysia** islam = unity
# 455,207	**06:20, Aug 08, waleed zekry, Egypt** Please delete these picture... and respect all relegions... Thanks
# 455,206	**10:36, Aug 07, Kashif ur Rehman, Pakistan** Don't spread this lust
# 455,205	**04:12, Aug 06, ibrahem almutery, Saudi Arabia**
# 455,204	**02:26, Aug 06, Name not displayed, Malaysia** Please just remove the face.. we must not assume how his face look like..
# 455,203	**21:00, Aug 05, Nedal Sholy, Egypt** Why this issue is important to you? (Ù‚Ø£Ù†Ù‡ Ø£Ù†Ø±Ù… Ø®Ù‚Ù‚ Ø§Ù‚Ù‚Ù‡ (Øµ Ù‚Ù‰ Ø§Ù‚Ù‚Ù‡ Ù¨Ø°Ù‚Ù‡ Ù¨Ø°Ù‚Ù…
# 455,202	**09:50, Aug 05, Name not displayed, United Arab Emirates** People should respect one another's religion and should respect their beliefs
# 455,201	**01:46, Aug 05, Name not displayed, India** Please remove any image of Our Nabi "peace be upon him". We are against it.
# 455,200	**00:10, Aug 05, Shahid khan, Bahrain** Please delete these picture... and respect all relegions... Thanks
# 455,199	**11:01, Aug 04, Faisal Rehman, India** Please remove any image of Our Nabi "peace be upon him". We are against it.
# 455,198	**10:14, Aug 04, Name not displayed, CA**
# 455,195	**22:11, Aug 02, mezhoud youcef, Algeria**
# 455,194	**20:20, Aug 02, mohammad ahmed, Pakistan** Evey MUHAMMADI should come forward and act against the cartoons of muhammad(saw).
# 455,193	**04:31, Aug 02, Muhammad Bilal Saleem Barkati, Pakistan** Remove the false pictures of our beloved Holy Phrophet Muhammad (Sallaloho alaihi wa aalihi wa sallam) from internet. The signatures have increased far from the set goal and still you are not removing these false pictures. Very shameless act. Remove the pictures immediately or wait for the punishment of Allah SWT.
# 455,192	**01:13, Aug 02, Shaheer E.P., Kuwait** Pls remove this pic

Source: http://www.thepetitionsite.com/2/removal-of-the-pics-of-muhammad-from-wiki%20pedia [15/04/2010].[37]

Similar to the petition's claim, the conflict on the discussion pages centered on whether to remove the depictions of Muhammad, and it exemplifies contestation of the site's norms and principles. In a binary identity conflict of 'us' (the Western secular world) versus 'them' (a strand of Islamic belief), consensus is difficult since a solution means rejecting one position. So how did users move 'forward on disagreements in practice' (in the words of Taxman)?

In the following passages, I select peaks in edit count of the English and German discussion pages, since the overall discussions take place over hundreds of pages. The peaks in the English language version's discussion page[38] devoted solely to this question are cited below.[39] Given that Faraz Ahmad's petition was in English, the English discussion page's peak unsurprisingly contains nine times more edits than the German.

In both versions, the depictions of Muhammad mainly bases the argumentation on the NPOV and 'Wikipedia is not censored' principles, rejecting particularity and religious beliefs:[40]

> I think it would help for those who do not like the images to understand why they are there. It is Wikipedia policy that we do not remove material relevant to an article for reasons external to encyclopedic value and NPOV. I find the number of pictures to be a tad ridiculous as they over represent a minority view in favor of standard representation of human beings. While this is not ideal by any means it is the consensus version and while it over emphasizes a means of representation it is rather more difficult to invoke NPOV when their purpose is primarily aesthetic (although, I argue it still is relelvant). The point is Wikipedia is driven by consensus and generally that should be respected even though the Islam-related articles seem to be troll magnets. If you would like to discuss the images according to Wikipedia policy feel free to. But, even if the images are someday removed from Muhammad some will still remain on Depictions of Muhammad where there is no doubt that they are relevant. Not to open a-whole-nother can of worms but there will be images that insult some Muslims because notable artists create them. For Christians there is Piss Christ, for Muslims you have the Muhammad cartoons and even Peter Klashorst's work of nude models with niqab on. Regardless of images here, there is no way that Wikipedia will remove all offensive images. gren グレン 08:06, 27 January 2008 (UTC).[41]

37. This page is no longer online.
38. 'Talk: Muhammad/images'.
39. In terms of numbers and dates: Wikipedia contributors, 'Diskussion:Mohammed', http://de.wikipedia.org/wiki/Diskussion:Mohammed: 28 April 2007, to 5 June 2007 (212 edits); http://de.wikipedia.org/wiki/Diskussion:Mohammed: 04. January 2008 to 2 March 2008 (1,836 edits).
40. Please note that in the English FAQ section for this controversy this frame was even linked to a legal frame: 'So long as they are relevant to the article and do not violate any of Wikipedia's existing policies, nor the law of the U.S. state of Florida, where most of Wikipedia's servers are hosted, no content or images will be removed from Wikipedia because people find them objectionable or offensive'. Wikipedia contributors, 'Talk:Mohammed/FAQ', http://en.wikipedia.org/wiki/Talk:Muhammad/FAQ#How_can_I_hide_the_images_using_my_personal_Wikipedia_settings.3F, whereas in the German language version this link was not made.
41. 'Talk:Muhammad/images'.

> First of all, just a reply to Tharkuncoll, you may debate that Muhammed's (PBUH) output to the humanity should not be patented by the muslims, however you can not argue about the fact that the muslims are the most affected people with what written and published about Muhammed (PBUH), affected by all means (moraly, phsycologicaly, politicaly,....), hence it is something normal that what published about prophet Muhammad (PBUH) is much more concerning the muslims than any other group, for the muslims, it is not a matter of patenting a product for commercial or scientefic purposes, its a matter of feelings, and morals, exactly like the feeling of a mother toward her child, sure she is not patenting him, but she is the most one caring about him. For the rest of the messages; As I said before we are both playing a game with different rules, however because the field is yours we are urged to comply with your rules, or it will be fair enough to quite the game. – Preceding unsigned comment added by Hazem adel (talk • contribs) 15:12, 30 January 2008 (UTC). [42]

These two opposite positions cannot be negotiated or resolved. While user gren [43] makes direct references to Wikipedia' policies, in particular the NPOV principle, user Hazem adel [44] explicitly avoids or refuses to enter the discussion this way. Instead, by saying that it is 'a game with different rules', he puts forward claims of emotional and moral affectedness based on a user-centric knowledge culture detached from NPOV policy. Other users in favor of deleting the depictions or finding an acceptable consensus for both sides argue in terms of Wikipedia policy, such as 'Wikipedia is not censored':

> Visual imagery has always taken a secondary role when it comes to depictions of Muhammad; for that reason, giving heavier emphasis to an art form that conforms to Western aesthetic comes across as somewhat of an intellectual imperialism. I am not pro-censorship (in fact, I'm Shiite), but I still think the calligraphic styles and veiled styles, which represent the more typical forms, should taken precedent here. The reason most articles do not use such examples at the top is because most other historical figures have not been depicted in such a way. -Rosywounds (talk) 01:49, 2 February 2008 (UTC). [45]

While the German language Wikipedia displays Western encyclopedic values and concepts based on a scientific knowledge culture, the English one tried to build consensus towards deletion. In the selected discussion threads, the word 'consensus' can be counted 182 times. In the German discussion, the word 'Konsens' cannot be found, though the word 'consensus' turns up once in a contribution by an English language user on the de-talk page:

> Greetings, please forgive my writing in English but editors on the English version of this article are encountering difficulty establishing a consensus about displaying images of Muhammad on the article about him. Recently an en admin en:User:Tom harrison noticed the liberal usage of images of him on this German version of the article. We're curious to know if de.Wiki ever experienced this difficulty about displaying images of Muhammad and if so how was this resolved here? Thank you. Netscott 15:55, 23. Feb. 2007 (CET)
>
> I can't remember any problems with that. The pictures are Islamic art, and no Anti-Muslim cartoons. As far as I know, no Muslim at the German Wikipedia said anything against these pictures here. -- Arne List 16:40, 23. Feb. 2007 (CET). [46]

42. Ibid.
43. His user page names him Grenavitar.
44. This user page does not exist anymore.
45. 'Talk:Muhammad/images'.

Both this quotation, as well as the info box placed on top of the de-discussion page as a summary, indicate that the overall arguments for keeping the illustration were linked to a scientific-based knowledge culture arguing that the depictions represent historical art works. One user also argued that Wikipedia is a non-religious encyclopedia, repeatedly suggesting the problem should be addressed in the de-Wikipedia article on aniconism in Islam called [[de: Bilderverbot_im_Islam]]. He directly calls to transform the discussion into a well-sourced Wikipedia article about aniconism. Overall, users argued that Wikipedia has a secular and Western take – some refer to a European heritage – whose values should be respected:

> The German language Wikipedia is based on humanist foundations. These enlightened thoughts have provided the ground on which secular states in Western Europe could emerge. [...] Some Wikipedians seem to forget from time to time that they have duties towards the modern secular community of states. Otherwise there would not be a more or less religious criticism of secular statements. It is these secular statements that can contribution to education – as in the case of the Muhammad depictions which even originate from Islamic cultural spheres. As said, projects such as Wikipedia can only are only possible in a secular environment. Otherwise we would face here verbal murder and manslaughter. In addition, Muhammad as historical personage does not only belong to Muslims but the whole of humanity which has luckily many opinions. --Mediatus 21:49, 2. Mai 2007 (CEST). [47]

In comparison to this clear assertion, the English version follows a softer approach leaning towards a user-centric knowledge culture. Some users, such as Anthere, are aware that concensus building in this situation is not possible. Therefore, to respect those in favor of removing the depictions, a technical solution is suggested:

> After scanning the previous discussions, I see no-one suggesting use of the hidden template, so you have to click on 'Show' to see them, or 'Hide' to hide them. DrKiernan (talk) 09:14, 31 January 2008 (UTC)
> [...]
> I agree. Removing or not removing will obviously never meet consensus. Perhaps hiding template will make things less painful for muslims, without being censorship either. Anthere (talk) 23:13, 31 January 2008 (UTC). [48]

Some days later, on 5 February 2008, a new general discussion on the English language version's talk page started with the option of hiding certain Wikipedia images using personal

46. 'Diskussion:Mohammed'.
47. 'Diskussion:Mohammed', translation JN.
48. 'Talk:Muhammad/images'.

Source: [[en:File:Stop_sign_UAE.jpg]].

browser settings [49] and a proposal was also made on the talk page of Jimmy Wales' user page. [50] This post suggested building an instruction page on how to hide images, and the tutorial was written and posted later that day. [51] The discussion was not concerned with the template itself, but with the introduction of specific disclaimers in articles, illustrated by the following quotation:

> [L]ook, nobody whatsoever objects to the development of a 'halal Wikipedia' plugin that Islamic readers can install if they so choose. Instead of debating this here, people could just go and *do it*. This has nothing to do with Wikipedia policy at all, people are free to fiddle with their incoming internet traffic any way they like. You can develop a script that replaces 'Muhammad' with 'Muhammad (pbuh)', or 'Jimbo' with 'boobies' for that matter, in five minutes and just install it tacitly on your end. But no, this isn't about not seeing images, it is about making political noise. Still, if there *was* such a plugin, at least we could simply point further complaining users to it in a giant sign at the top of this page and move on. What is not acceptable is being pressured into adapting the standard toolbox / article space so that *everybody* is presented with a STOP sign and a message like 'STOP! IF YOU ARE MUSLIM, DON'T LOOK!!! CLICK HERE FIRST!' as Fredrick points out, every interest group on Wikipedia would give no peace until they'll have similar templates touting their own sensitivities to the world at large in place. dab 20:32, 5 February 2008 (UTC). [52]

49. At a later point, this option was also made possible by choosing certain personal Wikipedia account preference settings.
50. Wikipedia contributors, 'User_talk:Jimbo_Wales', http://en.wikipedia.org/wiki/User_talk:Jimbo_Wales/Archive_33#How_to_set_your_browser_to_not_see_images.
51. Wikipedia contributors, 'Help:Options_to_not_see_an_image',http://en.wikipedia.org/wiki/Help:Options_to_not_see_an_image. This page was later redirected to help page http://en.wikipedia.org/wiki/Wikipedia:How_to_set_your_browser_to_not_see_images. See [[en:Wikipedia:How_to_set_your_browser_to_not_see_images&diff=189372552&old id=189370626] for date of page creation.

Finally the suggestion was inserted in the FAQ section of the Muhammad article as a manual opt-out so that individual users settings would hide the depictions – though the disclaimer was rejected in the main name space. While a creative solution was found for individual user sites, the common space of Wikipedia maintained a scientific-based knowledge culture articulated by references to the NPOV principle. The general help page reveals a fracture that exposes the limits of Wikipedia itself as a boundary object allowing translation of various perspectives. The general page says, for instance:

> Wikipedia is not censored, and the community will in general not be prepared to remove content on grounds of being objectionable to some people. Wikipedia will also not use specific disclaimers within articles warning readers of such content. All articles fall under the site-wide Content disclaimer. [...] This page assumes that (a) you still want to visit Wikipedia (rather than creating a fork or simply staying away) and (b) you do not wish to enter discussions within Wikipedia policy to have the image changed, removed or deleted by building consensus. [53]

Building consensus is strongly linked to Wikipedia policy, but the Muhammad debate indicates that sometimes consensus simply is not possible. Users in favor of deleting the depictions may back up their arguments with Wikipedia policy, but they sometimes do not, instead using platforms within and outside Wikipedia as their battlegrounds. The help page above also points to exit strategies or individual solutions beyond translation, as new objects come into being that allow different meanings entirely, such as articles without the depictions on individual users' sites or an NPOV help page set up outside of the original boundary object that contradicts it to a certain extent. These new objects question the robust ability to 'maintain a common identity across sites'. [54]

In the German-language discussion, the option to hide certain images did not gain as much prominence. The option was only included when it was pointed out that it was allowed for the article on the founder of Bahá'í Faith called [[de:Baha'u'llah]], which became a precedent. Also, the discussion in the de-Wikipedia did not result in a meta or help page explaining how to hide images, while en-Wikipedia did. Again the en-Wikipedia shows stronger efforts to balance scientific and user-centric knowledge cultures. The case illustrates that there are limitations to NPOV policy as a boundary object in situations of binary controversy unresolved through discussion, and as a result, certain editorial decisions receive legitimization, ultimately shaping normativity in Wikipedia.

52. 'Talk:Muhammad/images', emphasis in original.
53. 'Help:Options_to_not_see_an_image'.
54. Susan Leigh Star and James R. Griesemer: 393.

Station 4: The Political Character of Rough Consensus

Rough consensus as boundary object deals with tensions between diversity and collaboration and calls for openness based on a minimal set of norms, including, for instance Wikiquette's first principle Assume Good Faith. Consensus ensures that different actors and viewpoints can contribute to a common project:

> Consensus as Jimmy was saying is not that everyone has to agree with every decision but you have to be able to agree to accept it. *I think that is an idea that has been lost over the while*. People have this idea that consensus means that everyone has to agree not that everyone has to accept it, has to accept that it was done fairly, that is was done reasonably [...]. [55]

This quote illustrates that Wikipedia bases itself on a consensus model referring to *how* the processes of editing and deliberating happens at the article level**.** At the same time, the discussions about the Mohammed depictions show that consensus can rupture. These ruptures are inscribed into NPOV and exclude certain viewpoints. For political theorist Chantal Mouffe, in these situations the political becomes visible. She develops an agonistic model of discursive power and contestation, in which those in excluded positions will ultimately bring issues into the political realm. While there is no inherent value in either positions – the dominant discourse is not deemed as bad or the counter-discourse as good – Mouffe's understanding of pluralism is positive because it is based on deliberation and articulation rather than interest group competition favored by traditional liberal pluralism. She argues that the dimension of the political also includes *irresolvable* antagonism, constituted by *power*. [56] Both premises are spelled out in user Hazem adel's statement: 'We are both playing a game with different rules, however because the field is yours we are urged to comply with your rules, or it will be fair enough to quite the game'. Here the conflict's political character steps into the foreground. The Muhammad depictions boldly reveal political moments that often occur in a more disguised manner in other Wikipedia discussions; every editorial decision involves power, and every 'consensus' leads to a momentary sedimentation of meaning involving exclusion.

Nevertheless, Mouffe emphasizes the distinction between agonism and antagonism. While the latter is understood as a struggle between enemies, agonism is seen as struggle between adversaries who view themselves as 'legitimate enemies'. [57] She argues against rational consensus, instead suggesting a political model of agonistic pluralism that does not abandon the 'us-versus-them' distinction. The agonist model requires rough consensus or, as Mouffe puts it, 'It requires allegiance to the values, which constitute its 'ethico-political' principles'. [58] Rough consensus refers to a set of principles of mutual respect for beliefs, as well as the right to defend them. Through mutual recognition, actors construct a shared symbolic space and are aware of the common structure of dissent. To summarize, rough consensus helps to

55. Kat Walsh, 'Growing Pains', Wikimania, 2009, unpublished transcription by Johanna Niesyto, http://wikimania2009.wikimedia.org/wiki/Proceedings:41.
56. Chantal Mouffe, *The Democratic Paradox*, London: Verso, 2000.
57. Ibid, p. 15.
58. Ibid, p. 16.

transform antagonism into agonism by accepting the Other as legitimate through a temporary provisional hegemony. In cases where public discussions reach a final consensus, society is deprived of the opportunity to criticize. Mouffe puts forward a political model based on discursive contestation that rejects consensus as the final aim of the communicative process. A flexible relation of inclusion/exclusion and inside/outside forms an inherent part of the political. Therefore, consensus constitutes only one point in a larger process.

With the Muhammad depictions, deliberation on the English language talk page used the term 'current consensus' related to the community's ability to resolve the issue. One comment reads:

> If people want to have a civil, novel discussion over the images, that's great, and *it might change consensus*. If, however, they drive by and call for deletion using arguements in violation of WP:NOT (Offense), WP:VER (Inaccurate depiction), WP:NPOV (Not a Muslim POV of Muhammad) they are shown the FAQ and introduced to the *current consensus* and the policies guiding it. -MasonicDevice (talk) 23:05, 21 February 2008 (UTC). [59]

Obvious in this statement is that the consensus model is linked both to certain ethico-political principles such as civility and to Wikipedia policies that help formulate exclusion. However, with the Muhammad depiction case, the English language version shows greater flexibility within the relation of inclusion/exclusion because it articulates the 'currentness' of consensus. Also, by introducing the technical solution for hiding images, the line of inclusion and exclusion – what Ernesto Laclau calls a 'chain of equivalence' – becomes dynamic.

Compared to this, the German language discussion remains relatively fixed, strictly using Wikipedia policy to argue against the Other. Legitimacy of the Other is not only linked to norms but to the use and acceptance of the policies. The English language version, in contrast, shows how irresolvable antagonism can lead to political creativity.

Conclusion: Political Creativity

The technical solution proposed in the English language version illustrates spaces of political creativity woven into the technology: [60] the en-Wikipedia's discussion leads to a new help page. In both language versions, technical solutions were proposed to change account preference settings and to filter content locally through a proxy or by configuring the web browser. A user on the Muhammed talk page confirms this: 'Instead of debating this here, people could just go and *do it*. dab 20:32, 5 February 2008 (UTC)'. [61]

While I used Mouffe's notion of political character to discuss an apparently irresolvable antagonism, I turn to political theorist Hannah Arendt to discuss political character in relation

59. 'Talk:Muhammad/images', emphasis added.
60. The role of technological actors in constructing social order is discussed by Stuart Geiger in this reader.
61. 'Talk:Muhammad/images', emphasis in original.

to creativity. Arendt also refers to the agonal character of the political,[62] but she introduces creativity as another central dimension. Arendt herself does not use the term 'creativity', but she places genesis of the new in a central position, in which the possibility of acting is at the core.[63] For her, it is not so crucial that political actions are carried out or even accomplished; more important is the ability to begin something new and to step into the public 'space of appearance'.[64] Drawing on Aristotle, she understands the principle of action as the constitutive dimension of the political. Consequently, she formulates the notion of power through the human potential to enter a *space of appearance,* in which people act and communicate. Power here is not a struggle over hegemony but is derived from the Latin word 'potential', putting the process or possibility of creating at the forefront, rather than as the outcome, of the center of political power.[65]

One can witness the potential of entering a space of appearance with the Muhammad depictions – the potential for visibility and new voices in the general help page and the FAQ section, even if the pictures in the main article itself remained visible. The start can be seen within the talk pages where those in favor of deleting the depictions led their adversaries to offer options in the FAQ section and the more general help page. These actions may not lead to a change of the main Muhammad article itself, but something new was *started.* This can be interpreted as a rupture of the boundary objects, since the new page allows the use of Wikipedia beyond NPOV policy or 'Wikipedia is not censored' and addresses different viewpoints and particularities: 'Some people wish to not see some images on Wikipedia, for various reasons – images may not be suitable for a work environment; they may wish to prevent their children from seeing such images; their religion may forbid it; and so on'.[66]

62. However Hannah Arendt's and Chantal Mouffe's philosophical foundations very much differ, as Chantal Mouffe puts it herself: 'My conception of the agonistic public space also differs from the one of Hannah Arendt which has become so popular recently. In my view the main problem with the Arendtian understanding of 'agonism', is that to put it in a nutshell, it is an 'agonism without antagonism'. What I mean is that, while Arendt puts great emphasis on human plurality and insists that politics deals with the community and reciprocity of human beings which are different, she never acknowledges that this plurality is at the origin of antagonistic conflicts. According to her to think politically is to develop the ability to see things from a multiplicity of perspectives. As her reference to Kant and his idea of 'enlarged thought' testifies her pluralism is not fundamentally different from the liberal one because it is inscribed in the horizon of an intersubjective agreement. Indeed what she looks for in Kant's doctrine of the aesthetic judgment is a procedure for acertaining intersubjective agreement in the public space. Despite significant differences between their respective approaches, Arendt, like Habermas, ends up envisaging the public space in a consensual way'. Chantal Mouffe: Artistic activism and agonistic politics (without date), http://www.monumenttotransformation.org/en/activities/texts/chantal-mouffe#more.
63. Harald Bluhm, 'Hannah Arendt und das Problem der Kreativität politischen Handelns', in Harald Blum and Jürgen Gebhardt (eds), *Konzepte politischen handelns. Kreativität – Innovation – Praxen*, Baden-Baden: Nomos, 2001, p. 73.
64. Hannah Arendt, *Vita activa – oder vom tätigen Leben*, Stuttgart: W. Kohlhammer Verlag, 1960, pp. 193-202.
65. Ibid.
66. Wikipedia contributors, 'Help:Options_to_not_see_an_image', http://en.wikipedia.org/wiki/Help:Options_to_not_see_an_image.

However, the discussion on the process of article editing illustrates that translation between different viewpoints was not possible and in fact led to exclusion in varying degrees in both Wikipedias. In discussions in the two language versions about NPOV, the en-Wikipedia version more strongly supports the idea of a user-centric knowledge culture. This may also be the reason why the en-version suggests political creativity more prominently.

Translation is a process of intermediation between different contexts of knowledge. Thus it understands boundary objects as media of translation that make meaning fluid. In this process the political reveals agonism between different meanings and provides spaces for political creativity. Boundary objects and translation indicate plurality of meanings and thus emphasize the roughness in the concept of rough consensus.

Thanks to Nathaniel Tkacz and the CPOV editors for their useful comments on this paper.

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OUTLINE OF A CLUSTERING PROCEDURE, AND THE USE OF ITS OUTPUT

HANS VARGHESE MATHEWS

Intended Purpose of the Procedure

The purpose of the procedure described here is to cluster the various editors that a Wikipedia page has had through some suitably short period, into groups or 'factions' distinguished from each other by some identifiable interest: which may be considered coordinate to or concomitant with an interest in that page itself. Let us call this latter *the page being studied*; the algorithm works upon the record of the *other Wikipedia pages* these editors also edit, in the same period; and as it has been currently implemented will work best over relatively short stretches of frequent editing – between one and three months, at a guess – by a collection of editors who do have diverse interests (but not so very many that they do not band into factions.)

Input

Suppose $E_1, E_2, ..., E_i, ... E_n$ are the editors of the page being studied, and let $P_1, P_2, ..., P_j, ... P_m$ be the other pages that some or other editor E_i edits, in the period considered.The input to the algorithm is a binary matrix D with a row for each editor and a column for each page, with its ij-th entry D_{ij} being 1 if E_i has edited P_j, and 0 otherwise.

Reducing Noise

For any row R_i of D suppose that $C_{j1}, C_{j2}, ..., C_{jk}$ are the columns whose i-th entry is 1; then $P_{j1}, P_{j2}, ..., P_{jk}$ are, of course, the other pages E_i has edited. We consider each column of D as a vector now and form a symmetric k by k matrix A by setting, for each index r and index s in the set $\{1, 2, ... , k\}$, both the rs-th entry A_{rs} and the sr-th entry A_{sr} equal to the cosine of the angle between C_{jr} and C_{js}. Let λ be the largest eigenvalue of A; this will be greater than or equal to 1; and we expect that for most rows λ will be markedly larger than the average of those eigenvalues of A that are smaller than 1. But if that is not the case, or if $k = 1$, we declare the editor corresponding to that row a *singleton*. Suppose q among the n editors have been declared singletons. Now each page P_j will have a certain number q_j of singletons (possibly zero) among the n_j editors it has; and we declare P_j *singular* if the number $q_j \cdot n$ is markedly larger than the number $q \cdot n_j$. The rows corresponding to singleton editors and the columns corresponding to singular pages are regarded as noise, and removed from the data D before proceeding.

Generating Groupings of the Editors

By a *grouping* of a set we mean partitioning it into non-empty subsets: each of which is a *group* within that grouping.

Suppose $E_1, E_2, \ldots, E_N$ editors and $P_1, P_2, \ldots, P_M$ pages remain after the removal of noise, with their edits collected in an N by M matrix which we shall continue to call D. There are a number of ways to obtain, from the r-th row R_r and the s-th row R_s of the reduced data matrix D a measure of similarity between the editors E_r and E_s ; and each such method yields a symmetric n by n similarity matrix Σ having in its rs-th entry Σ_{rs} – as well as in its sr-th entry Σ_{sr} of course – the extent of the similarity assessed by that method between the editors E_r and E_s.

A variety of hierarchical clustering methods may now be applied upon Σ to obtain groupings of our editors. Each method of clustering should yield one grouping, ideally, but it might happen that some methods do not yield satisfactory groupings at all, and, contingent upon the similiarity measure, a given method might well yield more than one. In our experiments we have not very often found, that for a given similarity measure and hierarchical clustering method, that one decomposition is unambiguously better than all the others, as a given run of the routine suggests.[1] The algorithm proceeds now by using different similarity measures and different clustering methods to generate a large number of distinct groupings and later selects a useful few from these groupings.

Marking Groups within Groupings, with Pages

Suppose that Γ is a grouping of our editors, into groups $G_0, G_1, \ldots, G_K$ of sizes $N_0, N_1, \ldots, N_K$ with $N_0 + N_1 + \ldots + N_K = N$. Though we have removed singleton editors and singular records, some or other similarity measure coupled with some or other clustering method may well give us a clustering where some stray clusters have too few members; we get a grouping from such a clustering by retaining the sufficiently-sized clusters as our groups – which we call *homogeneous* – while the very small stray clusters are gathered into the group G_0.

For a page P and for each index k in $\{1, 2, \ldots, K\}$ suppose that Q_k among the N_k members of G_k have edited P ; set $Q(\Gamma) = Q_1 + Q_2 + \ldots + Q_K$ and $N(\Gamma) = N_1 + N_2 + \ldots + N_K$. If the editing of P has been random, we may expect that about $W_k = Q(\Gamma) \cdot N_k / N(\Gamma)$ among the members of G_k will have edited this page; and should the usual chi-square test, using the set of *observed against expected* pairs $\{(Q_1, W_1); (Q_2, W_2); \ldots ; (Q_k, W_k)\}$, happen to detect unexpected ensembles of editors, we mark G_k in Γ with the page P wherever the number $Q_k \cdot N(\Gamma)$ is markedly larger than the number $Q(\Gamma) \cdot N_k$.[2]

1. We employ the standard criteria, suggested by Duda and Hart, to pick the more likely ones among the various decompositions suggested running a hierarchical clustering routine on a similarity matrix. We have not employed any agglomerative routine that requires one to specify, in advance, the number of clusters: like the *k-means* routine, for instance. But we note that using the average linkage method with the similarity measure $\Sigma_{rs} = cosine(R_r, R_s)$ usually gives results comparable to what *k-means* will yield. We have not attempted any spectral clustering either: because such methods seem specially adapted to discerning configurations in low-dimensional Euclidean spaces, where the membership of a point in a cluster is entirely determined by local contiguity, and where it is possible that a point properly assigned to one cluster will be closer to another cluster, considered whole, than to the great majority of the points in its assigned cluster.
2. We do not expect G_0 to be marked, considering how it is obtained; and it seems prudent to leave it out of the reckoning when marking the homogeneous groups.

Characterizing Groupings, Using the Markings of their Groups

For a homogeneous group within a grouping, marked as pages as above, there will be one or more pages that receive the most editing by its members: and the fraction φ of its members who edit the most edited page, or pages, is taken as a measure of the extent to which that group is *focused*. The heterogeneous G_0 and any unmarked groups will have their focus set to 0, and the focus of the grouping as a whole is a sum of these fractions φ suitably weighted by the relative sizes of their respective constituent groups.

First let $G_1, G_2, \ldots, G_q$ be the marked groups within a grouping Γ and let $P_1, P_2, \ldots, P_r$ be the pages which mark them. Form a q by r matrix C by putting in the ts-th entry C_{ts} the fraction of the members of G_t who edit P_s, for each t in $\{1, 2, \ldots, q\}$, and for each s in $\{1, 2, \ldots, r\}$. Then form a symmetric q by q matrix S by setting both its ij-th entry and its ji-th entry equal to the cosine of the angle between the vectors that the i-th and j-th rows of C make. This quantity should give us a passable measure of the overlap in interest between the groups G_i and G_j. Dividing the largest positive eigenvalue of S by the sum of its positive eigenvalues should yield a number θ in the interval $[0, 1]$ which passably measures the extent to which the interests of the marked groups in Γ, considered together, overlap or mix; and $1 - \theta$ may be taken, conversely, to measure how separate these interests are.

Bundling the Groupings

As a preliminary to this operation we remove all those groupings where the fraction of editors in unmarked groups is unusually high, compared to the general proportion. To bundle the groupings themselves into disjointed collections we must in some way asses the similarity or congruence between any pair Γ and Λ of our groupings: and what we use is the measure of *mutual information* $I(\Gamma, \Lambda)$ divided by the square root $[H(\Gamma) \cdot H(\Lambda)]^{1/2}$ of the product of the usual individual measures of *entropy*.[3]

Let $\Gamma_1, \Gamma_2, \ldots, \Gamma_v$ be the all groupings we have; these informational similarities will give us a symmetric v by v matrix. The usual factor analytic procedure then gives us as many distinct bundles of groupings as there are factors, and then – treating the groupings as 'observed variables', each variously correlated with the 'factors' that identify the bundles 'latent' in the groupings – we use a suitably rotated loading matrix to pick the groupings that make up a bundle.

3. Let $\Gamma = G_0, G_1, \ldots, G_K$ and $\Lambda = J_0, J_1, \ldots, J_L$ be distinct groupings of N objects; for r in $\{0, 1, \ldots, K\}$ and s in $\{0, 1, \ldots, L\}$ set $p(G_r) = count(G_r)/N$, $p(J_s) = count(J_s)/N$ and $p(G_r \cap J_s) = count(G_r \cap J_s)/N$; we have $I(\Gamma, \Lambda) = \Sigma\, r,s : G_r \cap J_s \neq nullset\ p(G_r \cap J_s) \cdot \log 2\ [p(G_r \cap J_s)/p(G_r) \cdot p(J_s)]$ then, and $H(\theta) = I(\theta, \theta)$ for any grouping θ.

Selecting Useful Groupings

At most three groupings are selected from each distinct bundle of groupings, as follows. Within each bundle the groupings are divided into three subsets: one where the interests of the constituent groups are unusually mixed, another where those interests are unusually separate – if there are any groupings which may be regarded in either of these ways – and the third consists of the remaining groupings, where interests are neither unusually shared nor unusually separate. We expect in this way to cover the actual range of possibilities. The most focused grouping is then picked out from each of these subsets; so, if there are J bundles, at most $3 \cdot J$ groupings will be selected as those more likely to be of use[4].

Using the Output

The pages that mark a group, within a grouping, should indicate the concomitant interest or interests that distinguish it from the other groups in that grouping; and, though it is technically possible, it is extremely unlikely that the same pages will mark different groups within a grouping. Each selected grouping may be examined by itself, using a table which pairs marking pages with groups: each cell of the table will show what fraction of which group has edited which page. The selected groupings may be examined altogether against all the marking pages as well, in a table which will have one row for each marking page and one column for each grouping; and the cell for a particular grouping and a particular page will now show which of the groups in that grouping was marked by that page, and what fraction of each marked group edited the page.

By scanning the table which gathers together the markings and the groupings – the latter should be manageably few, as we noted – someone who possesses prior knowledge of page's subject being studied should be able to pick one or two among the selected groupings as more reasonable than the rest; and the contrasting markings by pages of the groups constituting the finally chosen grouping, or groupings, should reveal the diverse interests that its editors have brought to the page being studied. Should it happen that the marking of the groups finally found is appreciably more separate than mixed, we might safely guess that the various interests at play are not colliding ones. If these markings are much more mixed than separate, conversely, it might well be that conflicting interests are at work; but only an examination of the edits made to the page being studied could tell us if that is likely.

The output of our clustering procedure should be of some use, then, in assaying the distinctive *discursive history* that a Wikipedia page might have; and Wikipedia pages would often enough exhibit, one imagines, certain discursive features peculiar to their continuing augmentation and revision. By indicating colliding or complementary in

4. In our trials we used seven different measures of similarity between the editors, and the five standard linkage methods of hierarchial clustering. We got anywhere between forty and sixty groupings on each run; but these collected themselves almost always into very few bundles.

terests, and pointing to where one might find them at play, our procedure should help direct investigation, and assist in assembling evidence upon which to found such inference and interpretation as is proper to the writing of such a history: which should be particularly eventful when, for instance, the *topos* or matter of a page admits incompatible founding premises.[5]

Technical Considerations and Caveats

It should be evident now that the algorithm outlined above is *a quantitative procedure in the service of qualitative understanding* – for which its output is certainly no substitute – and that seems only proper, considering the uncertainty attendant upon the assessment of how well a clustering 'fits' its data. Constructing a discursive history for a Wikipedia page is likely to require many runs of the algorithm, on different episodes of frequent editing, punctuated by the examination of judiciously selected past versions of the page. But, though the human assay of the record should undo gross machine error, it might be well to list certain summary choices made in the design of the procedure, and where it might be improved.

Regarding the input: it is easiest to consider all ancillary edits made by the editors of the page being studied, rather than *substantive* edits only, simply because there seems to be no efficient machine process that will distinguish the latter from the rest. Reducing noise becomes imperative then; and the way that is done here is sufficient for the intended uses of the output, we trust, though the identification of singletons is rather crudely done. As there is no 'natural' measure of similarity for the binary data we have, it seems best to generate many groupings, using different similarity measures and clustering routines. The marking of groups by pages has been done in the standard way, and we register the usual caveat: that the distribution of the standard 'expected against observed' statistic is only approximately chi-square. The attributes of *focus, mixing and separation* that a grouping of editors is endowed with seem natural ones; but the summary numbers that measure them have, again, been somewhat crudely obtained. Regarding how groupings are bundled: the factor analysis of the matrix of informational similarities seems a good way to proceed, to decide on the number of 'latent' bundles; and the usual varimax method seems the appropriate rotation procedure for assiging groupings to bundles. But perhaps some attention should be paid to the marking of groups in measuring similarity between groupings. Focus would seem to be the most useful attribute of a grouping; and as there is no reason to expect that

5. The egregious example here is the clash between Darwinists, for whom biological evolution is a process of *natural selection* which is not *directed* by agency of any sort, and those who discern some evidence of design in the development of organic life. An equally fundamental opposition, on the issue of whether or not ecosystems *actively* maintain themselves, appears to divide deep ecologists from their conventional cousins. Psychology exhibits as thoroughgoing an opposition between those who regard the unconscious as a structural *obverse* to consciousness, as it were – as Lacan and his school appear to – and those who seem to see it as a *complement* of sorts, rather, to consciousness.

useful groupings will be either mixed or separate, it seems best to choose the focused groupings after dividing each bundle into subsets that are unusually mixed, unusually separate, and neither one nor the other.[6]

We note, finally, that it is not impossible that a considerable proportion of the editors of a page should be singletons, as we have termed them; and in that case the dominant interests of these individuals – who may or may not be particularly aware of each other – would have to be ascertained somehow, to see how their activity might have shaped whatever discursive history the page has had.

6. We could dispense with these measures of focus and mixing and separation though, and try to choose some 'best-fitting' grouping from each bundle of such: by using multinomial logistic regression for instance. Reducing the data *D* to those pages that are marked for the groupings in a bundle, and regressing thus the reduced data against the outcome variable each grouping will naturally yield, will give us some measure of how well that grouping, compared to the others in the bundle, fits the reduced data.

WIKIPEDIA ART: CITATION AS PERFORMATIVE ACT

SCOTT KILDALL AND **NATHANIEL STERN**

Introduction

The *Wikipedia Art* entry, first launched on 14 February 2009,[1] stated:

> *Wikipedia Art* is a conceptual artwork composed on Wikipedia, and is thus art that anyone can edit. It manifests as a standard page on Wikipedia – entitled *Wikipedia Art*. Like all Wikipedia entries, anyone can alter this page as long as their alterations meet Wikipedia's standards of quality and verifiability.[2] As a consequence of such collaborative and consensus-driven edits to the page, *Wikipedia Art*, itself, changes over time.[3]

The work is a poetic gesture towards language and collaboration, a nod to the traditions of concept- and networked-based art, and most of all, a performance on, and intervention into, Wikipedia.

According to Wikipedia itself, an 'art intervention' is 'an interaction with a previously existing artwork, audience or venue/space' and 'by its very nature carries an implication of subversion'.[4] Art interventions attempt to 'affect perceptions', 'change … existing conditions' and/or 'make people aware of a condition that they previously had no knowledge of'.[5] Although such works are now 'accepted as a legitimate form of art', they often stir 'debate' or cries of 'vandalism', especially when the work itself has not been endorsed by 'those in positions of authority over the … venue/space to be intervened in'.[6]

Wikipedia Art is many things: an open-ended concept, an immanent object, a collaborative text, and a net-work that complicates the very possibility for these distinctions. This paper most specifically explicates and unfolds the performance of *Wikipedia Art*

1. The date of launch – Valentine's Day – was a playful reference to the ILOVEYOU virus (which was itself launched 5 May 2000). Wikipedia contributors, 'ILOVEYOU', http://en.wikipedia.org/w/index.php?title=ILOVEYOU&oldid=331449436, accessed 13 December 2009.
2. Wikipedia contributors, 'Wikipedia: Verifiability', http://en.wikipedia.org/w/index.php?title=Wikipedia:Verifiability&offset=20090205145559&action=history, accessed 26 January 2009.
3. Scott Kildall and Nathaniel Stern, 'Wikipedia Art: Original Article on Wikipedia', Wikipedia Art Archive, 10 December 2009, http://wikipediaart.org/wiki/index.php?title=Wikipedia_Art.
4. Wikipedia contributors, 'Art intervention', 6 December 2009, http://en.wikipedia.org/w/index.php?title=Art_intervention&oldid=330098737, accessed 13 December 2009.
5. Wikipedia contributors, 'Art intervention', 6 April 2010, http://en.wikipedia.org/w/index.php?title=Art_intervention&oldid=354268129, accessed 13 May 2010.
6. Wikipedia contributors, 'Art intervention', 6 December 2009, http://en.wikipedia.org/w/index.php?title=Art_intervention&oldid=330098737, accessed 13 December 2009.

as an intervention into, and critical analysis of, Wikipedia: its pages, its system, its volunteers and paid staff. Both the artwork and our paper use and subvert Wikipedia itself – the definitions it puts forward, the discourses engaged by its surrounding community on and off the site and as a venue/space ripe for intervention. In the paper, we briefly unpack how the artwork speaks back to the structure and performance of Wikipedia, online consensus, the mythologies behind Wikipedia, and Wikimedia's power more generally.

Structure and Authority

Although anyone may attempt to add an article to Wikipedia, it has strict rules about what should and should not be displayed on its pages. New articles may only be created for 'notable' subjects, [7] and all information provided must be 'verifiable' through citations from 'reliable' sources. [8]

At this point we should note that our paper, like Wikipedia and like *Wikipedia Art*, uses citations almost entirely from mainstream sources of information (such as, and including, Wikipedia) to make all of its arguments. This methodology is in line with that which the paper aims to critique.

Wikipedia defines citations only 'loosely' as 'a reference to a published or unpublished source (not necessarily the original source)' [9] (and not necessarily true). In other words, the declared 'threshold for inclusion' of knowledge on Wikipedia is 'not truth', [10] but cited sources, despite their acknowledgment that the reliability of a source, how 'trustworthy or authoritative' it is, 'depends on context'. [11] It is up to what Andrew Keen describes as the 'amateurs' of the web to edit and select citations for inclusion on Wikipedia.

Keen and David Weinberger provide two opposing, mainstream perspectives on how Wikipedia functions in just this way. Keen's general position is that amateur-constructed and mediated institutions such as Wikipedia have diluted both the value and content of news, information, and public debate more generally. He argues that the,

> cult of the amateur has made it increasingly difficult to determine the difference between reader and writer, between artist and spin doctor, between art and advertisement, between amateur and expert. The result? The decline of the quality and reliability of the information we receive, thereby distorting, if not outrightly corrupting, our national civic conversation. [12]

7. Wikipedia contributors, 'Wikipedia: Notability', 8 December 2009, http://en.wikipedia.org/w/index.php?title=Wikipedia:Notability&oldid=330351388, accessed 10 December 2009.
8. Wikipedia contributors, 'Wikipedia: Verifiability', 6 December 2009, http://en.wikipedia.org/w/index.php?title=Wikipedia:Verifiability&oldid=330013462, accessed 10 December 2009.
9. Wikipedia contributors, 'Citation', Vers. 328974167, 1 December 2009 http://en.wikipedia.org/w/index.php?title=Citation&oldid=328974167, accessed 5 December 2009.
10. Ibid.
11. Wikipedia contributors, 'Wikipedia: Reliable Sources', 28 November 2009, http://en.wikipedia.org/w/index.php?title=Wikipedia:Reliable_sources&oldid=328322772, accessed 10 December 2009.

David Weinberger contrapuntally argues that it is precisely between the differences in subjective voices that we arrive at a consensual meaning. 'In a miscellaneous world', he avers,

> an Oz-like authority that speaks in a single voice is a blowhard. Authority now comes from enabling us inescapably fallible creatures to explore the differences among us, together. [13]

Our paper and artwork are less concerned with the individual voices of, or debates about accuracy between, social media participants, and more so in the power that Wikipedia itself holds, and the citation mechanism at the center of it all. We argue, along with internet pioneer Dave Winer, that the cited words on Wikipedia have consequences. Winer asserts that 'Wikipedia is … considered authoritative'. [14] It may not be a blowhard, but what its articles say often becomes conventional wisdom.

We mean this in the truest sense of the word 'conventional': Wikipedia is convenient. In a recent *Journal Sentinel* article, Milwaukee Art Museum curator Mel Buchannan explains that many academics, artists, journalists, and curators use Wikipedia as their initial source of information, even if they don't like to say so. [15] Wikipedia encourages its perpetual usage as an information reference with links to 'cite this page' from every article; information powerhouse Google most often points to Wikipedia first in its returned searches; and, as Buchanan points out, even the most qualified and rigorous researchers use Wikipedia as their starting point when embarking on new projects.

Wikipedia citations, in other words – these loose, third-hand, and potentially untrue things – disseminate widely. In our research, we began to think of Wikipedia citation as not just a re-cited descriptor of fact, but rather as a performative act.

Performative Citations

Proffered in J.L. Austen's posthumously published lectures from 1955 at Harvard, [16] the basic premise of a performative utterance is that spoken or written words can actually 'do something' to the world. Austin objected to the logical positivist's concentration on the verifiability of statements. He introduced the performative as a new category of utterances, distinguishing it from constative utterances. While the latter report something, the former do something. Performative utterances have no truth-value, as they do not describe or provide

12. Andrew Keen, *Cult of the Amateur: How Today's Internet is Killing Our Culture*, New York: Doubleday/Currency, 2007.
13. David Weinberger, *Everything is Miscellaneous*, New York: Holt Paperbacks, 2008.
14. Janet Kornblum, 'It's online, but is it true?', *USA Today*, 6 December 2005.
15. Nathaniel Stern, 'Googling Art and Design?', *Milwaukee Journal Sentinel*, 5 October 2009, http://www.jsonline.com/blogs/entertainment/63531747.html.
16. J.L. Austen, *How to do Things with Words (William James Lectures),* Oxford: Clarendon, 1962.

information about the world (or a person or thing), but act up on it, are an action in their uttering. Performative utterances function by way of forces.

Austin defined two such forces: the illocutionary and the perlocutionary. Illocutionary acts as utterances have a conventional force. These acts include informing, ordering, warning, and undertaking, and they involve the 'securing of uptake', a listener's response. [17] A good example here could be uttering the words, 'I'm sorry'. This has the direct force of an apology, the indirect force of admitting wrongdoing, and the potential uptake of a listener accepting the apology (or not).

The perlocutionary act, on the other hand, is 'what we bring about or achieve by saying something, such as convincing, persuading, deterring, and even, say, surprising or misleading'. [18] While the illocutionary act is bound up with effects, the perlocutionary act produces effects. The most classic example of such an event is a wedding: with the spoken words, 'I do', the speaker is transformed from a single person into a spouse. Words literally change his or her ontological state of being. Other performative/perlocutionary possibilities, which may shift depending on their context, include a declaration of war, after which we are no longer in a state of peace, or to 'knight' someone, henceforth 'Sir Elton John'. [19] Here, words are an activity with consequences. They can make, transform, or kill. Austen believed that all speech has a performative dimension.

Wikipedia citations are performative. They do not merely have truth value, but are bound with actions and consequences. The addition of a new page to Wikipedia, for example, may be considered illocutionary (and require uptake) in its asking for permission to be posted as an article, or perlocutionary in its attempt to definitively frame a given subject. The implications of individual Wikipedia editors' actions, and the speech/language used to perform these actions, are far reaching.

As a case in point, David Horvitz once used Wikipedia to initiate cascading effects in the real world. At some point in the mid-2000s, Horvitz altered the Wikipedia entry for Ian Curtis – lead singer of Joy Division – to read that in the last moments before Curtis committed suicide, he glanced at one of Horvitz's photographs. The falseness of this tidbit was eventually found

17. Ibid, p. 116.
18. Ibid., p. 108.
19. Performativity as a concept has been appropriated (and thus redefined) by various disciplines over the last several decades, leading performance studies scholar Richard Schechner to declare it 'A Hard Term to Pin Down' and to dedicate an entire chapter in his book, *Performance Studies: An Introduction*, to its definition, history and use. He says that as a noun, a performative – which is no longer necessarily spoken – 'does something'; as an adjective – such as what Peggy Phelan calls performative writing – the modifier 'inflects… performance' in some way that may change or modify the thing itself; and as a broad term, performativity covers 'a whole panoply of possibilities opened up by a world in which differences between media and live events, originals and digital or biological clones, performing onstage and in ordinary life are collapsing. Increasingly, social, political, economic, personal, and artistic realities take on the qualities of performance'. Richard Schechner, *Performance Studies: An Introduction*, New York: Routledge, 2002, p. 110.

out and removed from the page, but not before it became part of the mythic story: many Curtis fan sites still include Horvitz in their account of his death. [20]

The Horvitz work, however, only goes in one direction: from the artist's initial intervention on Wikipedia, to other sites online. *Wikipedia Art*, on the other hand, capitalizes on the potential for a feedback loop between Wikipedia's information, and the information that feeds Wikipedia. The Wikipedia page for 'Digital Dark Age' provides an amusing illustration of the potential for just such a loophole in Wikipedia's citation mechanism.

Wikipedia defines the term 'Digital Dark Age' as 'a possible future situation where it will be difficult or impossible to read historical documents, because they have been stored in an obsolete digital format'. [21] While the problem of digital archiving is a real one, the article as we first encountered it contained a major error. Starting in October 2008, Wikipedia cited as an example of digital obsolescence the magnetic tape recordings from NASA's 1976 Viking landing on Mars that it said were stored in an outdated and unreadable format. Soon after this information was put on Wikipedia, mainstream publications such as *Science Daily,* [22] *United Press International*, [23] and many smaller sites and blogs followed with concerns about the Digital Dark Age, all citing the 'lost data' of the NASA Viking tapes.

The problem with this: the data on these tapes was actually recovered. [24] We easily found a *New York Times* article, dating back to 1990, which countered the anonymous Wikipedia claim. And although we were good Wikipedia citizens and fixed the erroneous example on their site seven months after it was initially posted, this misinformation persists and has permeated into public conversation. Ironically, a given editor might use the *Science Daily* or *United Press International* articles that followed Wikipedia's false claim as a credible reference in order to post this provable falsehood right back to the site.

This example, one of many, points to the conundrum of Wikipedia being both the most up-to-date *record*, and most-cited contemporary *source*, of knowledge. Wikipedia's co-founder, Jimmy Wales, envisions the site as potentially becoming 'the sum of all human knowledge',[25]

20. For example, see http://www.last.fm/group/Ian+Curtis and http://120dbs.blogspot.com/2006/09/suicide-loudest-silence-ian-curtis.html.
21. Wikipedia contributors, 'Digital Dark Age', 7 October 2009, http://en.wikipedia.org/wiki/Digital_Dark_Age, accessed 5 December 2009.
22. Science Daily, '"Digital Dark Age" May Doom Some Data', 29 October 2008, http://www.sciencedaily.com/releases/2008/10/081027174646.htm.
23. United Press International, 'Scientist Warns of "digital dark age"', 28 October 2009, http://www.upi.com/Science_News/2008/10/28/UPI-NewsTrack-Health-and-Science-News/UPI-58301225230240/.
24. According to the *New York Times*, 'virtually no data from past J.P.L. planetary misssions have been lost' – and the little that was lost is because 'some tapes had been kept in substandard storage'. The very little information that NASA does not have access to has nothing to do with the Digital Dark Age, as Wikipedia et. al. have published. Sandra Blakeslee, 'Lost on Earth: Wealth of Data Found in Space', *New York Times,* 20 March 1990.
25. Roblimo, 'Wikipedia Founder Jimmy Wales Responds', Slashdot, 28 July 2004, http://interviews.slashdot.org/article.pl?sid=04/07/28/1351230.

summarizing what is 'out there'. The site also claims to be 'the largest and most popular general reference work on the Internet' as a whole, the place where information 'comes from'.[26] This section is meant to emphasize the difference between summative record of information on the one hand and a qualified reference or source on the other, between anonymous persons collecting information and authors/authorities writing that information into existence. Weinberger implicitly calls this the 'paradox' of 'anonymous … authority'.[27] On Wikipedia, a citation is meant to merely document an object, place, or thing; instead, it often constitutes how we know the thing itself.

In this sense, Wikipedia's role is not unlike the U.S. Postal Service in the 1947 Christmas film, *Miracle on 34th Street*. In George Seaton's classic tale, an unnamed mail clerk wishes to get rid of all the 'dead letters' to Santa Clause that are piling up in his office. The clerk sees one such letter addressed to Kris Kringle, who plays St. Nicholas at Macy's in New York City, and decides to follow suit – sending tens of thousands of letters to that very same address. In citing one letter's address for Santa Clause – whether factual or not – this mail clerk lends the U.S. government's official support of Kris Kringle. The letters he sends are thereafter used as a literal stockpile of evidence to win a large lawsuit claiming Kris to be the one and only true Santa Clause.

Wikipedia articles, we contend, lend themselves to a similar credibility. They cite or reference something from somewhere, and – although truth is not their threshold – it *becomes* true once on the wiki. In Seaton's movie, a mail sorter makes a somewhat arbitrary choice that changes history. On Wikipedia, a small group of self-selected editors do the same. In both cases, a citation is a performative act.

Wikipedia Art

Wikipedia Art uses such performative citations to intervene in Wikipedia's paradoxical stature as both *record* and *source* of information. Each contribution to the *Wikipedia Art* entry, which is also the work itself, performatively transforms what it is, what it does, and what it means. It is, like Wikipedia, a large-scale collaboration. But unlike Wikipedia, *Wikipedia Art* is a creative endeavor and an intervention into the powerful platform that enables its existence.
The work, in its first incarnation on Wikipedia, says,

> *Wikipedia Art* is an art intervention which explicitly invites performative utterances in order to change the work itself. The ongoing composition and performance of *Wikipedia Art* is intended to point to the 'invisible authors and authorities' of Wikipedia, and by extension the Internet,[28] as well as the site's extant criticisms: bias, consensus over credentials, reliability and accuracy, vandalism, etc.[29]

26. Wikipedia contributors, 'Wikipedia', Vers. 329883228, http://en.wikipedia.org/wiki/Wikipedia. Accessed 5 December 2009.
27. David Weinberger, *Everything is Miscellaneous*, New York: Holt Paperbacks, 2008.
28. Brian Sherwin, Scott Kildall and Nathaniel Stern, 'Wikipedia Art: A Virtual Fireside Chat Between Scott Kildall and Nathaniel Stern', MyArtSpace.com, 14 February 2009, http://www.myartspace.com/blog/2009/02/wikipedia-art-virtual-fireside-chat.html.
29. Wikipedia contributors, 'Wikipedia', 28 January 2009, http://en.wikipedia.org/w/index.php?title=Wikipedia&oldid=266887630, accessed 10 December 2009.

> Scott Kildall and Nathaniel Stern, *Wikipedia Art's* initiators, refer to the work's publish-cite-transform feedback loop as 'performative citations'. They maintain that the project 'intervenes in Wikipedia as a venue in the contemporary construction of knowledge and information, and simultaneously intervenes in our understandings of art and the art object'.[30] The artists request writers and editors to join in the collaboration and construction / transformation / destruction / resurrection of the work, want their 'intervention to be intervened in'.[31] Stern and Kildall say that 'like knowledge and like art, *Wikipedia Art* is always already variable'.[32]

Here, we ask our potential collaborators – online communities of bloggers, artists, and instigators – to exploit the shortcomings of the wiki through performance. We invite them to engage with the supposedly ambiguous and decentralized power of Wikipedia's most affluent editors and with how decisions are made around reliability and verifiability in wikispace.
Vital to our project was that we follow Wikipedia's own rules – we did not want the work to be construed as vandalism and, indeed, hoped to encourage a critical analysis of Wikipedia's citation mechanism, as well as the most active participants on the wiki. Following their rules meant that *Wikipedia Art* had to first be written about in 'noteworthy' sources, which could be 'verifiably' cited on the wiki.

To create these 'noteworthy' sources, we solicited collaborators – several of whom were already cited and thus considered reliable and authoritative sources for art on Wikipedia – to write about the project well before the planned date for intervention. For example, we found that arts critic and former editor of the popular web site MyArtSpace, Brian Sherwin, not only had a Wikipedia page about him and his writing,[33] but his online texts were also often cited on various other Wikipedia articles about contemporary artists and exhibitions.[34] We approached Sherwin to introduce and publish a two-way interview between us (Kildall interviewing Stern interviewing Kildall) that laid out the foundations of the not yet extant *Wikipedia Art*, and simultaneously drafted a Wikipedia article on *Wikipedia Art*, which cited that very interview.

Wikipedia Art Logo

On 14 February 2009, at 12PM PST, Sherwin published said interview, and minutes later, Jon Coffelt, aka longtime Wikipe-

30. Sherwin, Kildall and Stern.
31. Ibid.
32. Ibid.
33. Wikipedia contributors, 'Brian Sherwin', 11 February 2009, http://en.wikipedia.org/w/index.php?title=Brian_Sherwin&oldid=269991107, accessed 10 December 2009.
34. For example, http://en.wikipedia.org/wiki/Nathaniel_Stern and http://en.wikipedia.org/wiki/Sarah_Maple and http://en.wikipedia.org/wiki/Addressing_the_Shadow_and_Making_Friends_with_Wild_Dogs:_Remodernism and http://en.wikipedia.org/wiki/Michael_Craig-Martin and http://en.wikipedia.org/wiki/Freeze_(exhibition) and http://en.wikipedia.org/wiki/Jesse_Richards among many others.

dia editor ArtSoujourner, performatively birthed *Wikipedia Art* by placing our pre-drafted and referenced article on Wikipedia. Minutes after that, Professor Patrick Lichty, of *The Yes Men*, posted an analysis of *Wikipedia Art* to Futherfield.org, which was quickly cited on Wikipedia, adding to the work.[35] And so on.

We used behind-the-scenes publicity to encourage numerous other online sources to write about the *Wikipedia Art* project. These pages both linked to the *Wikipedia Art* page on Wikipedia and then were cited on, and linked back to from, Wikipedia itself. The *Wikipedia Art* entry was updated – by us and by others – immediately following every publication.

The documented history of the work on its wiki page in its first incarnation read:

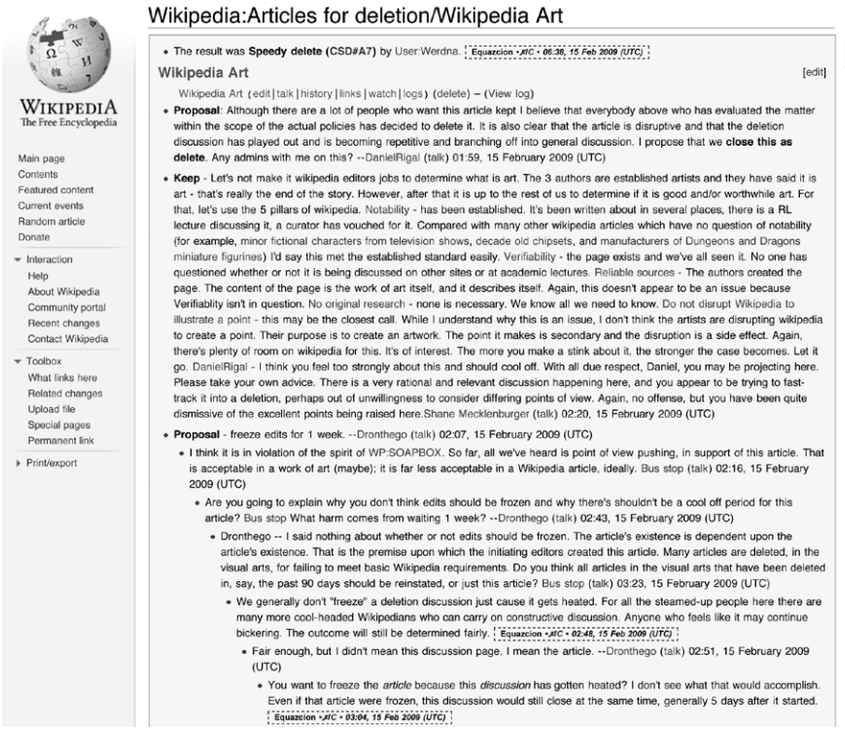
> Wikipedia Art was initially created by artists Scott Kildall and Nathaniel Stern on February 14 2009. It was performatively birthed through a dual launch on Wikipedia and MyArtSpace, where art critic, writer, and blogger, Brian Sherwin, introduced and published their staged two-way interview, 'Wikipedia Art - A Fireside Chat.' The interview ended with Stern declaring, 'I now pronounce Wikipedia Art.' Kildall's response: 'It's alive! Alive!'

The *Wikipedia Art* page and history quickly grew. But while well-known art blogs and sites such as Two Coats of Paint and Rhizome.org covered the piece (enabling yet more performative citations), Wikipedia editor Daniel Rigal quickly nominated the page as an Article for Deletion (AfD). It underwent a long and heated deletion debate in which many different voices clashed on the merits of the work, its noteworthiness, whether or not it was 'suitably encyclopedic', and the functions of Wikipedia and its editors.[36] Fifteen hours after the initial intervention, *Wikipedia Art* was removed by an 18-year-old Wikipedia admin named 'Werdna'.

In the hours, days, and weeks that followed, the piece mutated from idea to concept to object, from performance to vandalism to trademark infringement to high art. It was killed and resurrected many times over by wiki editors of all sorts. It appeared in several different articles on the site,[37] via debate that was cited on and from Wikipedia itself, Rhizome.org, Slashdot, the *Wall Street Journal*, the *Guardian UK*, PBS.org, De Telegraph – the list goes on, more than 300 texts in more than 15 languages, discussing the work, its legitimacy, creative ideas, legal issues, and personal insults – all, we assert, part of the 'work' that *is* the 'work of art'.

South African arts critic Chad Rossouw puts forward this very argument when he writes that 'Aside from all the interesting … points [*Wikipedia Art*] makes about the epistemology

35. Patrick Lichty, 'WikiPedia art?', 14 February 2009, http://blog.furtherfield.org/?q=node/267.
36. Wikipedia Art, 'Articles for deletion/Wikipedia Art', 14 February 2009, http://wikipediaart.org/wiki/index.php?title=Articles_for_deletion/Wikipedia_Art, accessed 10 December 2009.
37. Including, for example, a section on the Wikipedia entry for Conceptual Art (penned by Professor Edward Shanken) and a new page called Wikipedia Art controversy. Neither of these example entries/edits were solicited by us.



Detail from Wikipedia Art's Article for Deletion on Wikipedia.

of Wikipedia and the use, meanings, and function of art, the real idea of the work is that art only exists fully through discourse'.[38]

In other words, it *is* only through how it *is performed*.

Consensus is Consensus is Consensus (Maybe)

The performance of Wikipedia, like that of *Wikipedia Art*, goes above and beyond its citation mechanism. Buried in the Wikipedia discussion pages, for example, there are often lengthy debates around when and how Wikipedia's somewhat ambiguous rules are or are not properly adhered to. And decisions about specific articles tend to be made through a consensus of those users who are personally invested in them. But the problem is precisely this: a consensus at Wikipedia is not consensus on a given topic, ready for worldwide dissemination via the site; it is merely a consensus at Wikipedia. This section of our paper first discusses the potential illusion of general consensus online, where consensus within a given community is misrepresented as global consensus on a given topic. It then argues that consensus – whether on Wikipedia or elsewhere – is something lobbied for, through networking

38. Chad Rossouw, 'Wikipedia Art: where art and editors lock horns', ArtThrob, 8 March 2009, http://www.artthrob.co.za/09mar/project.html.

Sample Press for Wikipedia Art.

and alliance-building by personalities with agendas, rather than reached through scholarly discourse on a given subject. It gives both past scientific and present Wikipedia-based examples of knowledge making in just this way. Finally, it turns to satirist newsman Stephen Colbert for a little insight into knowledge production on the wiki.

Artist, theorist, and professor Curt Cloninger argues that *Wikipedia Art* not only intervenes in Wikipedia and the discourses of art, but also into online models of knowledge and debate more generally. Cloninger asks, 'How is a consensus at' one art site 'qualitatively superior to a consensus at' another, or at Wikipedia for that matter?[39] In the center of a heated discussion on Rhizome.org, he asserts the irony that small pockets of 'online consensus [are] being used to evaluate the success or failure of' *Wikipedia Art*, 'a piece intended … to explore the topic of online concensus [sic]'.[40]

While *Wikipedia Art* was still live as a Wikipedia entry, two well-known critical art sites – Rhizome.org and ArtFagCity.com – provided two very different perspectives on the piece. The Rhizome discussion saw artists and theorists in heated debate about the work, our intentions, and its merits (or lack thereof).[41] Here it was alternatively 'a strong relative of networked conceptu-

39. Paddy Johnson and ArtFagCity contributors, 'Wikipedia Art Lasts All Day!', Art Fag City, 16 February 2009, http://www.artfagcity.com/2009/02/16/wikipedia-art-lasts-all-day/.
40. Ibid.
41. See http://rhizome.org/editorial/2360 and http://www.rhizome.org/discuss/view/41713

alism or highly formal online media art' (Lichty), 'an interesting experiment but doomed from the start' (Thayer),[42] an 'interesting & fun … revelation' (Szpakowski), and 'one big performance' (MTAA) that was 'conceptually porous' (Cloninger), among other things.[43] ArtFagCity (AFC), on the other hand, provided a thread where the vast majority of commentators agreed that the work was weak. Here, the consensus was that *Wikipedia Art* is 'almost inherently boring' (Johnson), 'hate'-worthy (Moody), 'a waste' (Hwang) and 'half-baked' (Zimmerman).[44]

Interestingly, what minimal crossover of discussion there was between the two sites illustrates that, while consensus may be reached in a small group of like-minded people, it often doesn't hold up to a broader audience. In fact, the commentators at AFC acted like a small faction of the online arts community, huddling together in a camp so as to reach consensus, then sending out word of the decisions they made. Moody, for example, linked to the discussion at ArtFagCity to try and prove his point on Rhizome that the work failed and was made in bad faith. When he posted on both of the separate Rhizome threads that the 'project is being mostly panned over at Paddy Johnson's blog [AFC]', he was trying to claim that the consensus at AFC was a more general consensus, that Rhizomers should simply agree or concede that *Wikipedia Art* and its progenitors and their tactics are 'icky' and 'disingenuous'.[45]

Moody's ongoing hyperlinks and attempts to guide the discussion towards his own/AFC's opinion, were, in turn: taken on board by MTAA – the work 'makes sense to me'; rebutted heartily by Cloninger – 'you're stereotyping your philosophers'; dismissed by Lichty – 'I'm not offended at all at Tom's mock outrage at my mock outrage, or the other criticisms of the project'; and more.[46] Contrapuntally, commenter t.whid cited Rhizome on ArtFagCity and asked for clarification of some of the ideas presented, as an attempt to encourage a more even-handed discussion there. Moody quickly shut this down with an ad hominem attack, saying the 'inherently boring' aspects of the work are 'perfectly clear', and that t.whid was 'wasting time asking for infinite clarification', despite that the question was raised only once. He went on to call t.whid 'disingenuous as heck'.[47]

In both cases, the relatively easily reached consensus at one site was far from agreed upon when attempts were made to inject that consensual opinion elsewhere. The clash between art-appreciators on AFC and Rhizome provided the aforementioned Curt Cloninger with an apt demonstration of his most lucid point about the work. He applauds *Wikipedia Art* for the potential for commentary that it provides regarding online pockets of consensus versus canonicity and general consensus.

42. Patrick Lichty and Rhizome contributors, 'WikiPedia as Art?', Rhizome.org, 14 February 2009, http://rhizome.org/discuss/view/41713.
43. Ceci Moss and Rhizome contributors, 'Wikipedia Art', Rhizome.org, 17 February 2009, http://rhizome.org/editorial/2360.
44. Paddy Johnson and ArtFagCity contributors, 'Wikipedia Art Lasts All Day!', 16 February 2009, Art Fag City, http://www.artfagcity.com/2009/02/16/wikipedia-art-lasts-all-day/.
45. Ibid.
46. Moss and Rhizome contributors.
47. Paddy Johnson and ArtFagCity contributors.

Cloninger effectively claims that any work of art's relevance and value or, for that matter, a person or object's noteworthiness, is always forever debatable – even if decided and agreed upon in groups. He asks how consensus at ArtFagCity is 'qualitatively superior to a consensus at Rhizome (or at iDC or nettime, where dialogue is also happening about this piece)?'[48] How, he goes on to bash Brooklynite Tom Moody, is '"non-intellectual" Brooklyn underground gallery canonicity qualitatively superior to "intellectual" academic press canonicity', the latter implicitly offered by Rhizome.org?[49] This is when Cloninger makes his ironic assertion about online consensus being used to evaluate online consensus. He suggests that where Tom Moody – the major proponent of ArtFagCity's negative perspective – had intended to discredit *Wikipedia Art* by citing a small audience that agreed on its failure, he merely served the work by instigating further discussions around citations, consensus, and how they work together. These differing opinions expressed online do not, as Weinberger hopes, create a consensual meaning across internet space. Rather, they succeed in implementing isolated areas of contradictory and not-quite consensus.

Cloninger uses our artwork to explicitly question not only the rules of and authority behind AFC and Rhizome and the personalities behind their debates, but also Wikipedia and its attempt at objectivity. *Wikipedia Art*, he contends, 'has effectively raised' contemporary issues 'regarding the inherent subjectivity of canonicity and authority' on Wikipedia and beyond.[50] He continues, 'The wikipedians… are deluded into thinking that they are achieving some sort of clinical objectivity via rational consensus (or that any such objectivity could ever be achieved)'.[51] The larger problem inherent in Cloninger's assertion is that isolated consensus on Wikipedia, as already discussed, can later become conventional wisdom.

Albeit in a different context, Bruno Latour and Steve Wooglar also question the possibility of clinical objectivity, in their book *Laboratory Life: The Construction of Scientific Facts*.[52] Here the authors don't give a history of scientific discovery, but rather attempt to determine how facts come to acquire their factual character. According Latour and Wooglar, they present:

> the laboratory as a system of literary inscription, an outcome of which is the occasional conviction of others that something is fact. Such conviction entails the perception that a fact is something which is simply recorded in an article in that it has neither been socially constructed nor possesses its own history of construction.[53]

Their argument is that the laboratory is filled with the social and the political, and the doing and making of science cannot be separated from such forces. The illusion of separation is

48. Ibid.
49. Moss and Rhizome Contributors.
50. Ibid.
51. Ibid.
52. Bruno Latour and Steve Wooglar, *Laboratory Life: The Construction of Scientific Facts*, West Sussex: Princeton University Press, 1979.
53. Ibid, p. 105.

instituted retrospectively; for example, in the carefully written reconstruction of laboratory practice in a research paper.

Latour and Wooglar show that the scientific laboratory is not, in fact, 'a sterile, inhuman place', a space 'widely regarded by outsiders as well organized, logical, and coherent'. Rather, it 'consists of a disordered array of observations with which scientists struggle to produce order'.[54] So-called incontestable facts are not truths waiting to be uncovered, but the end result of long, messy, and confusing procedures. Facts become facts only when they are incorporated into a large body of knowledge drawn upon by others, and they lose their temporal qualifications.

In Latour's study of Louis Pasteur,[55] for example, the subject emerges not as the heroic discoverer of the microbial transmission of disease, but as the master who is strategically able to combine his findings with an array of elements and outside interests, such as army doctors, farmers, newspapers, French nationalism, specialist journals, transport experts, and the microbes themselves. Latour claims that Pasteur and his actor-network erase all controversy and write scientific history for themselves.

Latour's 1987 book, *Science in Action: How to Follow Scientists and Engineers through Society*, provides another study into how scientific 'facts' are generated, this time through strategic and collective action via publication and public debate. Here, a citation mechanism not dissimilar to Wikipedia's is used to legitimate the entire process. Scientific fact, the back cover of Latour's book asserts, comes from the building of networks. It's a numbers game, but one based more on perception than anything else. We cite one small scenario from his book at length here because we will later show an equivalent, and not uncommon, example on Wikipedia.

Says Latour:

> Mr Anybody's opinion can be easily brushed aside. This is why he enlists the support of a written article published in a newspaper. That does not cut much ice with Mr Somebody. The newspaper is too general and the author, even if he calls himself 'doctor', must be some unemployed scientist to end up writing in *The Times*. The situation is suddenly reversed when Mr Anybody supports his claim with a new set of allies: a journal, *Nature*; a Nobel Prize author; six co-authors; the granting agencies. As the reader can easily image, Mr Somebody's tone of voice has been transformed. Mr Anybody is to be taken seriously since he is not alone any more: a group, so to speak, accompanies him. Mr Anybody has become Mr Manybodies![56]

Here, as in politics, lobbying takes place, networks are built, and alliances are made to form what Latour calls 'the argument from authority'. The goal is not to 'be right', but to create 'a

54. Ibid, p. 5, 36.
55. Bruno Latour, *The Pasteurization of France*, Paris: A.M Metailie, 1984.
56. Bruno Latour, *Science in Action: How to Follow Scientists and Engineers through Society*, Boston: Harvard University Press, 1988, p. 31.

majority' that overwhelms 'the dissenter[s]'.[57] In this way, a hotly contested issue can see one viewpoint building much more support and eventually taking over as the dominant perspective.

One such instance outside of the laboratory in which alliances make way for scientific 'fact' is given in N. Katherine Hayles' classic book, *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature, and Informatics.*[58] Hayles tells of the Macy Conferences – a series of interdisciplinary and scholarly meetings in the 1940s and 1950s – where it was basically decided that 'data' is separate from the material that transports it. Communication, the scholars from the conference tell us, is entirely incorporeal.[59] But information, Hayles points out, requires materiality – whether a hard drive, a mind, electric cables, or a book. While we like to think of our bits as travelling around the ether without any flesh, we all know that our data is lost should the hard drive, mind, or cables fail, should the book be lost or destroyed. Problems of the Digital Dark Age, for example, can always be overcome if a clever software engineer deems outdated data formats worthy of her time, but if the physical Viking tapes themselves were lost, per our earlier example, there would be nothing anyone could do. Hayles reminds us that although 'it can be a shock to remember … for information to exist, it must always be instantiated in a medium'.[60]

The contemporary misconception of bodiless data, Hayles contends, is a direct result of the alliance-building that took place at, and the subsequent logic that was propagated after, the Macy Conferences. Even back then, she confirms, 'malcontents grumbled that divorcing information' from its material made its theorization 'so narrowly formalized that it was not useful as a general theory of communication'.[61]

Hayles' book turns historical scientific debate into 'narratives about the negotiations that took place between particular people at particular times and places'. She describes the 'contests between competing factions, contests whose outcomes were far from obvious. Many factors affected the outcomes, from the needs of emerging technologies for reliable quantification to the personalities of the people involved'.[62]

Here Hayles conveys just how fragile is the reasoning that underpins this discourse. 'Though overdetermined, the disembodiment of information was not inevitable'.[63] The 'fact' of 'disembodied data' is not 'correct', but rather a decision that was made – a consensus – within a small group of influential people who were advocating for a singular approach to the future of communication theory.

57. Ibid.
58. N. Katherine Hayles, *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature, and Informatics*, Chicago: University of Chicago Press, 1999.
59. Ibid., p. 19.
60. Ibid., p. 13.
61. Op. cit.
62. Ibid., p. 22.
63. Ibid.

Wikipedia's system of knowledge production through verifiability, we argue, is even more precarious than that of the communities described by Latour and Hayles. The entire structure is based on that which is specifically criticized: the creation of an implicit consensus through personal lobbying and recursive citations.

One Wikipedia-based example of such alliance-building towards a consensual end is the Dungeons & Dragons (D&D) WikiProject. Here, interested parties work together to add articles about the D&D world – its creatures, characters, campaigns, and accessories – to *our* world's most often used encyclopedia. The group has approximately 30 dedicated role-playing gamers that are concurrently active as Wikipedia editors[64] and so hundreds of articles have been created for Dungeons & Dragons characters, including the deities and demons Eilistraee, Vlaakith, and Marilith,[65] to name just three.

While it could easily be argued that such articles do not meet Wikipedia's threshold for inclusion – the only references given are the gaming materials themselves, zines like TSR or Wizards of the Coast, or fan sites – attempts to tag or remove these articles have been met by strong and coordinated resistance from the Dungeons & Dragons WikiProject members. Pages upon pages of archived text reveal the Latourian 'bringing friends in' model at play.

Beginning in 2008, for example, user Gavin.collins began arguing that articles such as those detailing D&D deities are self-referential and do not belong on Wikipedia.[66] What follows is an edited text of a typical response to his criticism:

> Drilnoth: 'Gavin has been adding Notability tags to articles again. I've been replacing them with Importance tags whenever I see them (hooray for the public watchlist!), but I thought that you might all want to know.'[67]
>
> BOZ: 'Indeed – a brilliant idea you had there … Are you beginning to experience the fun we've all had over the past year? ;)'[68]
>
> Bilby: 'I agree with BOZ here … while Gavin may often be technically correct, the process by which he tends to make his points is damaging to the community who try to build the articles and who might be willing to overcome any problems with them'.[69]
>
> Jéské Couriano: 'I think we may have a legitimate Arbitration case against Gavin. This has turned behavioral for the most part, and past attempts at dispute resolution didn't work'.[70]

64. Wikipedia contributors, 'Wikipedia:WikiProject Dungeons & Dragons/Participants', http://en.wikipedia.org/wiki/Wikipedia:WikiProject_Dungeons_%26_Dragons/Participants.
65. See http://en.wikipedia.org/wiki/Marilith, http://en.wikipedia.org/wiki/Vlaakith and http://en.wikipedia.org/wiki/Eilistraee, respectively.
66. Wikipedia contributors, 'Wikipedia talk:WikiProject Dungeons & Dragons/Archive 13', http://en.wikipedia.org/wiki/Wikipedia_talk:WikiProject_Dungeons_%26_Dragons/Archive_13.
67. Wikipedia contributors, 'Wikipedia talk:WikiProject Dungeons & Dragons/Archive 11', http://en.wikipedia.org/wiki/Wikipedia_talk:WikiProject_Dungeons_%26_Dragons/Archive_11.
68. Ibid.
69. Wikipedia contributors, 'Wikipedia talk:WikiProject Dungeons & Dragons/Archive 14', http://en.wikipedia.org/wiki/Wikipedia_talk:WikiProject_Dungeons_%26_Dragons/Archive_14.
70. Ibid.

Even to the personalities banding together, Gavin appears to be correct in his attempts to remove these articles from the Wiki. Rather than concede, however, they work together to not only to prove their viewpoint worthy, but discredit the dissenter. Most D&D characters added by members of the Dungeons & Dragons WikiProject remain on the Wiki because of such back-page organizing, which creates the illusion of consensus on the front end. It is with intended irony that we implemented a similar strategy in our failed attempts to have *Wikipedia Art* remain permanently on Wikipedia.

Stephen Colbert's notion of Wikiality most concisely illustrates the ludic wonders of consensus formation at Wikipedia and beyond. On his nightly fake news show, Colbert proffered 'the idea that if you claim something to be true and enough people agree with you, it becomes true.' [71] Latour might call such a thing a 'factish' – a combination between fact and fetish. Facts are true, he argues, because the objects themselves make it so, while with fetishes, subjects are responsible for projecting their beliefs onto the objects. [72] A factish requires action and event, or, in the case of Wikipedia, performative and recursive citation.

Wikipedia explains that Colbert defines Wikiality,

> as the concept that 'together we can create a reality that we all agree on – the reality we just agreed on'. The premise of wikiality is that reality is what the wiki says it is. He explained that on Wikipedia 'any user can change any entry, and if enough users agree with them, it becomes true'. [73]

Colbert basically calls Wikipedia a tautology, a cyclical argument for its own arguments – the Digital Dark Age indeed. He takes his own point to its illogical conclusion – editing a Wikipedia page in order to use Wikipedia's information and site as proof that his false statements are true.

In June 2008, Colbert claimed that Warren G. Harding was a 'secret negro president' and cited the Wikipedia page that he himself had changed for 'proof' of his reality. [74] Here, Wikipedia becomes a record *and* a source, a tautology of fact through Colbert's own discursively formed consensus. Colbert first makes a claim, then cites it *on* the Wiki, and finally quotes it *from* the Wiki, as proof that general consensus has been agreed upon. Put another way, consensus is consensus because consensus is consensus.

Colbert's ongoing interventions into Wikipedia are, too, quite a performance. [75] And they begin to debunk the myth of Wikipedia as, like science, objective truth-seeker.

71. Frank Ahrens, 'It's on Wikipedia, So It Must Be True', *Washington Post,* 6 August 2006, http://www.washingtonpost.com/wp-dyn/content/article/2006/08/05/AR2006080500114.html.
72. Bruno Latour, *Pandora's Hope: Essays on the Reality of Science Studies*, Boston: Harvard University Press, 1999.
73. Wikipedia contributors, 'Cultural impact of The Colbert Report: Wikipedia references', 3 December 2009, http://en.wikipedia.org/wiki/Wikiality#Wikipedia_references, accessed 6 December 2009.
74. Ibid.
75. Colbert's other interventions include, but are not limited to, wiki-lobbying – not unrelated to this section – and an edit of the number of elephants in the world.

Wikipedia Mythologies

We further argue that our intervention did not only exist at the level of a small number of editors in debate. It spoke back to the larger mythologies surrounding Wikipedia. We all know these: it is 'the free encyclopedia that anyone can edit' (stated on every page). [76] It is a public site that is in the public service. Even when they get things wrong, *we* are the system, *we* can fix it, and *we* are an inherently fair people. The mythology implies that there is no singular person behind the curtain, and no group that maintains control.

Weinberger describes this mythology best:

> Anonymous authors. No editors. No special privileges for experts. Signs plastering articles detailing the ways they fall short. All the disagreements about each article posted in public. Easy access to all the previous drafts – including highlighting of the specific changes. No one who can certify that an article is done and ready. It would seem that Wikipedia does everything in its power to avoid being an authority, yet that seems only to increase its authority. [77]

In other words, the mythology says that transparency makes all fallibility null and void. More importantly, there is no hierarchy on Wikipedia; all people are editors and all editors are equal.

With regards to mythologies, semiologist Roland Barthes once famously dissected the cover of *Paris-Match* magazine – an image of an African saluting the French flag. The denotation in this image, he says, what we see and what it represents is simply that: a black man in salute.

Following Saussure, Barthes says that images can point to a greater connotation, a myth, that is not simply a representation, but rather propagation made by the image itself. Here, the connotation is that of French imperialism. The image does not re-present, but rather presents – all on its own – a picture of France as a great nation, whose children, of all colors, faithfully serve. [78]

Wikipedia – its editors, trustees, and PR workers working in tandem, whether they know it or not – propagates a similar image of itself. All of Wikipedia's children, it contends, may participate in knowledge production. They can, the mythology avers, introduce new articles, edit those that need change, and remove irrelevant or unverifiable information.

John Seigenthaler, a well-respected journalist and *USA Today* editor, famously levied mainstream critiques against the information-structure of Wikipedia when an anonymous user altered the article about him in May 2005. For more than four months, the page suggested

76. Wikipedia, 'Wikipedia, the free encyclopedia', http://en.wikipedia.org/wiki/Main_Page, accessed 6 December 2009.
77. Weinberger.
78. Wikipedia contributors, 'Mythologies (book)', 19 October 2009, http://en.wikipedia.org/wiki/Mythologies_(book), accessed 6 December 2009.

that Seigenthaler played a role in Bobby Kennedy's assassination, as well as that he lived in the Soviet Union for 13 years. These are both demonstrably false factoids, which he fears are still circulating and that have only been corrected publicly and on Wikipedia thanks to his personal intervention with the Wikimedia Foundation and appearance on several news stations. [79]

Despite that thousands read and believed this misinformation, Stanford engineering professor and Wikipedia advocate Pall Saffo says that Seigenthaler 'overreacted'. [80] Saffo, who believes that 'Wikipedia is a researcher's dream', [81] claims that Seigenthaler 'should have just changed it. And he should've gotten his friends to help him watch it and every time it was changed, to change it back to what was correct'. [82]

Seigenthaler, Saffo goes on, 'clearly doesn't understand the culture of Wikipedia'. [83]

But according to Nicholas Ciarelli and his article entitled 'The Myth of Wikipedia Democracy', it is Saffo who does not understand the culture of Wikipedia. Rather, he believes the mythology behind it. Wikipedia, Ciarelli shows, is 'ruled by a tight clique of aggressive editors who drive out amateurs and newcomers [...] The brand is a myth [...] the most active 2 percent of users [have] performed nearly 75 percent of the edits on the site'. [84]

Research by Weinberger has shown that Wikipedia is far from a site by *the* people and more by *a* people. A mere 600 editors make about 50% of all Wikipedia edits. Eighty-seven percent of the Wikipedia editors are male, the average age is 26.8 years old, and people younger than 23 years old produce 50 percent of all its content. [85] These editors are, according to Wales, 'very technologically savvy … 20s and 30s [male] computer geeks'. [86] The result is often an over-focus on popular culture and aversion to outsiders with perspectives that differ from this demographic's. These editors run a very tight ship on the open editing system that is Wikipedia, in effect – according to William Emigh and Susan C. Herring – 'literally erasing diversity, controversy, and inconsistency, and homogenizing contributors' voices'. [87]

79. Wikipedia contributors, 'Wikipedia biography controversy', 30 November 2009, http://en.wikipedia.org/w/index.php?title=Wikipedia_biography_controversy&oldid=328695840, accessed 5 December.
80. Janet Kornblum, 'It's online, but is it true?', *USA Today,* 6 December 2005.
81. Wikipedia contributors, 'Paul Saffo', 1 November 2009, http://en.wikipedia.org/w/index.php?title=Paul_Saffo&oldid=323324024, accessed 6 December 2009.
82. Janet Kornblum, 'It's online, but is it true?', *USA Today,* 6 December 2005.
83. Ibid.
84. Nicholas Ciarelli, 'The Myth of Wikipedia Democracy', The Daily Beast, 30 November 2009, http://www.thedailybeast.com/blogs-and-stories/2009-11-28/wikipedias-attack-dog-editors/.
85. Glott, Schmidt, Ghosh, 'Wikipedia Survey – First Results', 9 April 2009, conducted by UNU-MERIT in co-operation with Wikimedia.
86. Natasha Lomas, 'Jimmy Wales on What's Next for Wikipedia: Why Wikipedia needs geeks and why a life unplugged is unthinkable', silicon.com, 5 November 2009, http://www.silicon.com/technology/networks/2009/11/05/exclusive-jimmy-wales-on-whats-next-for-wikipedia-39626372/.
87. William Emigh and Susan C. Herring, 'Collaborative Authoring on the Web: A Genre Analysis of Online Encyclopedias', 2005, Proceedings of the Thirty-Eighth Hawai'i International Conference on System Sciences, Los Alamitos: IEEE Press.

Ciarelli interviews several would-be editors who have had a very hard time participating on the site. Says one, 'You just can't sit down and write an honest, creative, and argumentative article … [a small] clique of users enforces Wikipedia's bewildering list of rules – policies covering neutrality, verifiability, and naming conventions, among other areas'. [88]

Ciarelli quotes Justin Knapp, a regular Wikipedia contributor, as saying that when newcomers try to edit highly erroneous factoids, 'someone will almost blithely refer' you to one of a growing list of many unknown and highly technical policies. Your 'changes are reverted immediately' and one won't 'know how they arrived at this decision'. [89] Ex-Wikipedia editor Eric Lerner says Wikipedia's 'democratic reputation is undeserved'. 'What ends up getting published', he says, 'is not decided by "the wisdom of crowds", it's decided by the administrators'. [90]

So pervasive is the populist image behind Wikipedia that many are surprised to learn that individuals at Wikipedia can have more or less 'clout' as editors, about the game-like 'deletionists' that take it upon themselves to erase that which they deem non-notable and 'inclusionists' who try to sneak past them. The large public that uses Wikipedia rarely thinks about the hierarchical structures that are behind the making of Wikipedia's long list of ongoing rules, about those that make PR decisions on its board, or that their founder and full-time public relations advisors will not hesitate in spreading falsehoods and name-calling Wikipedia naysayers. The myth is that Wikipedia deserves to be powerful precisely because no individual on the wiki has power. Unfortunately, and as we've said, this 'fact' is much more consensus than it is truth.

WikiPower

In fact, we have experienced firsthand assertions of power not only from anonymous Wikipedia editors, but also from paid staff members at Wikimedia, their lawyers, and even Jimmy Wales himself. The foundation deployed media-spinning tactics and legal intimidation in order to – quite counterintuitively – enforce the mythology of Wikipedia as a free and open enterprise.

Our prime example, on 23 March 2009, Scott Kildall, the registrant of the domain name wikipediaart.org, [91] received a letter from Douglas Isenberg, a lawyer representing the Wikimedia Foundation, which alleged that the 'Wikipedia Art' domain was infringing on their Wikipedia trademark. The foundation specifically requested that we transfer the domain over to them. [92] This action would effectively render the project extinct, since it had already been removed from Wikipedia and now only existed there in archive form. [93]

88. Ciarelli.
89. Ibid.
90. Ibid.
91. The legal proceedings were directed at Scott Kildall since he was the official registrant of the domain name. It should be noted, however, that he and Nathaniel Stern split the legal costs and worked together in all decision-making regarding the threatened litigation.
92. Douglas Isenberg, 'Re: registration and use of <wikipediaart.org> domain name', 23 March 2009, http://wikipediaart.org/legal/032309-Isenberg.jpg.
93. Ibid.

We sought legal advice from many sources and eventually worked very closely with Paul Levy, a pro bono lawyer from Public Citizen, who determined that we were on legally safe ground under 'fair use' of trademark. [94] Our work is both a commentary on Wikipedia and a non-commercial project. [95] We put up a disclaimer on our site that made clear 'we are not Wikipedia and do not wish to benefit from Wikipedia' and in a written letter offered to edit said disclaimer however Wikimedia saw fit.

Wikimedia again asked for us to transfer the domain, citing other, similar cases as proof they had legal standing. In response, Levy wrote to Mike Godwin, internet guru and general counsel of Wikimedia:

> As sad as I am to have to hold Wikipedia to the First Amendment and fair use rights of its non-commercial critics, I will have no compunction about doing so. I hope it does not come to that. I am sure it is not in the interest of Wikimedia to add the suppression of fair use and free speech to its brand identity. [96]

Levy then recommended we 'go public'.

We uploaded the appropriate legal correspondence to the wikipediaart.org website and provided Corynne McSherry at the Electronic Frontier Foundation with the link for a blog post. She wrote, 'it is hard to see what Wikipedia gains by litigating this matter. But it is easy to see how it … loses: What better way to call attention to the artists' critical work than by threatening their free speech?'. [97]

The controversy was picked up by several media outlets, most of which were very critical of Wikimedia. The negative publicity cost them the goodwill of many in the community that support its open enterprise, probably summarized best by the closing remark on a Slashdot.org post: 'Load and aim at foot'. [98] Although no official legal settlement was reached, Wikimedia eventually backed off.

But Wikimedia's PR response to the media blitz was swift. Despite documentation showing otherwise, Godwin stated on a semi-public list that 'No litigation was threatened or

94. Note that while 'fair use' is a term usually associated with copyright law – referring to how copyrighted content may be used transformationally, for commentary, etc. in a new work – there are also cases of fair use for trademarked names and logos, although the laws are much stricter in the latter case.
95. Lloyd L. Rich, 'Fair Use of Trademarks', 2002, The Publishing Law Center, 10 December 2009, http://www.publaw.com/fairusetrade.html.
96. Paul Levy, 'Upshot and Status', Wikipedia Art Archive, 17 April 2009, http://wikipediaart.org/legal/041709-LevyEmail.html .
97. Corynne McSherry, ' Wikipedia Threatens Artists for Fair Use', Electronic Frontier Foundation, 23 March 2009, http://www.eff.org/deeplinks/2009/04/wikipedia-threatens-.
98. Ragin, 'Wikipedia Threatens Artists for Fair Use' (comment), Slashdot, 24 April 2009, http://yro.slashdot.org/article.pl?sid=09/04/24/1239232.

commenced'. [99] He went on to publicly call us 'would-be artists'. [100] In another public forum, we were accused of producing a money-grubbing PR stunt by Wikipedia press director David Gerard, [101] who went on to say, 'They're performance artists. This is more performance. They fooled the EFF into playing along'. [102] And Wikipedia co-founder Jimmy Wales himself named us 'trolls … dedicated to vandalizing Wikipedia'. [103]

We decided not to respond publicly. Wikimedia was doing our (art) work for us: enacting much of what we had asked the public to look at critically on and around Wikipedia.

The conflict with the Wikimedia Foundation became part of the *Wikipedia Art* narrative, and after it produced this second round of press coverage, *Wikipedia Art* was again added to the site by an anonymous editor. The same Wikipedia editors from the first debate eventually deleted this page as well (despite that, again, a proper consensus was not reached). *Wikipedia Art* now exists only as a memory, an ephemeral performance, and, in a very succinct fashion, on the Wikipedia pages for Scott Kildall and Nathaniel Stern.

Conclusion

Despite its live mutations through continuous streams of press online, *Wikipedia Art* was considered controversial vandalism by those in the Wikipedia community and eventually removed almost entirely from the site. [104] If only for a short time, it addressed issues of notability, bias, consensus, myth, and power. *Wikipedia Art* exemplified citation as performative act: it was, as predicted, birthed, killed, resurrected, transformed, and eliminated yet again through a performance of words. [105]

Artist Pall Thayer argues that 'Art is always strictly tied to the time and culture from whence it came'. [106] Perhaps for that very reason, he goes on, 'it was best that *Wikipedia Art* was

99. Mike Godwin, 'The EFF appears to be somewhat upset by the foundation', posting to the Foundation-l mailing list, 23 April 2009, http://lists.wikimedia.org/pipermail/foundation-l/2009-April/051505.html.
100. Ibid.
101. David Gerard, 'The EFF appears to be somewhat upset by the foundation', posting to the Foundation-l mailing list, 23 April 2009, http://lists.wikimedia.org/pipermail/foundation-l/2009-April/051509.html.
102. Ibid.
103. WebProNews Staff, 'Wikipedia Founder Slams Wikipedia Art: Calls artists "trolls"',WebProNews, 11 May 2009, http://www.webpronews.com/topnews/2009/05/01/wikipedia-founder-calls-artists-trolls.
104. Excepting a tiny paragraph on the pages that describe Kildall and Stern's practices at large.
105. Here it is worth noting the *Wikipedia Art Remixed* project. Launched in mid-2009, this project was a collection of several dozen pieces from all over the world, where each artist-volunteer used some of the *Wikipedia Art* content – our logo, for example, or the text from the original article or debates – as source material for new artworks ranging from music or video to painting or printmaking. The collection of projects – all documented online at http://wikipediaart.org/remixes/ – was officially included as part of the Internet Pavilion at the 2009 Venice Biennale.
106. Patrick Lichty and Rhizome Contributors, 'WikiPedia Art?', Rhizome.org, 14 February 2009, http://www.rhizome.org/discuss/view/41713.

Wikipedia Art Remix, Video and Performance by Sean Fletcher and Isabel Reichert.

deleted'.[107] Rather than continuously being changed, and perhaps diluted, in its ongoing-ness, *Wikipedia Art* 'gets to live on as a reference point to the time and culture that created it'.[108] In other words, *Wikipedia Art* lives on because of its death; it is permanently inscribed in collective memory, an object-less fixture that asks us to remember the shortcomings of the Wiki. As user 'Helen' says on Furtherfield.org, 'the ghost of *Wikipedia Art* is bound to haunt the web for some time yet'.[109]

107. Ibid.
108. Ibid.
109. Helen Jamieson, 'WikiPedia art?' Furtherfield Blog, February 2009, http://blog.furtherfield.org/?q=node/267.

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QUESTIONING WIKIPEDIA

NICHOLAS CARR

During Wikipedia's rise to prominence from 2005 to 2007, the American author Nicholas Carr wrote extensively and critically about the encyclopedia on his blog Rough Type. Carr focused on the tension between Wikipedia's public image and the reality of the site's content, policies, and management structure. Here are five of Carr's posts from that period, reprinted in their original form. The only changes made were those in regard to formatting for consistency throughout the CPOV Reader.

The Death of Wikipedia

May 24 2006

Wikipedia, the encyclopedia that 'anyone can edit', was a nice experiment in the 'democratization' of publishing, but it didn't quite work out. Wikipedia is dead. It died the way the pure products of idealism always do, slowly and quietly and largely in secret, through the corrosive process of compromise.

There was a time when, indeed, pretty much anyone could edit pretty much anything on Wikipedia. But, as *eWeek*'s Steven Vaughan-Nichols recently observed, 'Wikipedia hasn't been a real 'wiki' where anyone can write and edit for quite a while now'.[1] A few months ago, in the wake of controversies about the quality and reliability of the free encyclopedia's content, the Wikipedian powers-that-be – its 'administrators' – abandoned the work's founding ideal[2] of being the 'ULTIMATE "open" format' and tightened the restrictions on editing.[3] In addition to banning some contributors from the site, the administrators adopted an 'official policy' of what they called, in good Orwellian fashion, 'semi-protection' to prevent 'vandals' (also known as people) from messing with their open encyclopedia. Here's how they explained the policy:

> Semi-protection of a page prevents unregistered editors and editors with very new accounts from editing that page. 'Very new' is currently defined as four days. A page can be temporarily semi-protected by an administrator in response to vandalism, or to stop banned users with dynamic IPs from editing pages.
>
> Semi-protection should normally not be used as a purely pre-emptive measure against the threat or probability of vandalism before any such vandalism occurs, such as when

1. Steven Vaughan-Nichols, 'Wikis are a Waste of Time', *eWeek*, 22 May 2006, http://www.eweek.com/article2/0,1895,1965848,00.asp?kc=ewnws052306dtx1k0000599.
2. Larry Sanger, 'Let's Make a Wiki', posting to Nupedia mailing list, 10 January 2001, http://web.archive.org/web/20030414014355/http://www.nupedia.com/pipermail/nupedia-l/2001-January/000676.html.
3. Antone Gonzalves, 'Wikipedia Tightens Rules for Posting', *Information Week*, 5 December 2005, http://www.informationweek.com/story/showArticle.jhtml?articleID=174900789.

> certain pages suddenly become high profile due to current events or being linked from a high-traffic website. In the case of one or two static IP vandals hitting a page, blocking the vandals may be a better option than semi-protection. It is also not an appropriate solution to regular content disputes since it may restrict some editors and not others. However, certain pages with a history of vandalism and other problems may be semi-protected on a pre-emptive, continuous basis. [4]

Ideals always expire in clotted, bureaucratic prose. It distances the killer from the killing. The end came last Friday. That's when Wikipedia's founder, Jimmy Wales, proposed 'that we eliminate the requirement that semi-protected articles have to announce themselves as such to the general public'. [5] The 'general public', you see, is now an entity separate and distinct from those who actually control the creation of Wikipedia. As Vaughan-Nichols says, 'And the difference between Wikipedia and a conventionally edited publication is what exactly?'

Given that Wikipedia has been, and continues to be, the poster child for the brave new world of democratic, 'citizen' media, where quality naturally 'emerges' from the myriad contributions of a crowd, it's worth quoting Wales's epitaph for Wikipedia at length:

> Semi-protection seems to be a great success in many cases. I think that it should be extended, but carefully, in a couple of key ways.
>
> 1. It seems that some very high profile articles like [[George W. Bush]] are destined to be semi-protected all the time or nearly all the time. I support continued occassional experimention [sic] by anyone who wants to take the responsibility of guarding it, but it seems likely to me that we will keep such articles semi-protected almost continuously. If that is true, then the template at the time is misleading and scary and distracting to readers. I propose that we eliminate the requirement that semi-protected articles have to announce themselves as such to the general public. They can be categorized as necessary, of course, so that editors who take an interest in making sure things are not excessively semi-protected can do so, but there seems to me to be little benefit in announcing it to the entire world in such a confusing fashion.
>
> 2. A great many minor bios of slightly well known but controversial individuals are subject to POV [point-of-view] pushing trolling, including vandalism, and it seems likely that in such cases, not enough people have these on their personal watchlists to police them as well as we would like. Semi-protection would at least eliminate the drive-by nonsense that we see so often.
>
> The basic concept here is that semi-protection has proven to be a valuable tool, with very broad community support, which gives good editors more time to deal with serious issues

4. Wikipedia contributors, 'Wikipedia: Protection Policy#Semi-protection', http://en.wikipedia.org/wiki/Wikipedia:Semi-protection_policy.
5. Jimmy Wales, 'Proposal: Limited Extension of Semi-Protection Policy', posting to WikiEN mailing list, 19 May 2006, http://lists.wikimedia.org/pipermail/wikien-l/2006-May/046890.html.

> because there is less random vandalism. Because the threshold to editing is still quite low for anyone who seriously wants to join the dialogue in an adult, NPOV [neutral point of view], responsible manner, I do not find any reason to hold back on some extended use of it. [6]

Where once we had a commitment to open democracy, we now have a commitment to 'making sure things are not excessively semi-protected'. Where once we had a commune, we now have a gated community, 'policed' by 'good editors'. So let's pause and shed a tear for the old Wikipedia, the true Wikipedia. Rest in peace, dear child. You are now beyond the reach of vandals.

Now, Let's Bury the Myth

25 May 2006

Now that we have (haven't we?) come to accept the death of the True Wikipedia [7] – even if the True Wikipedia only ever existed in our fantasies – maybe we can move on to bury, once and for all, the great Wikipedia myth.

The myth begins with the idea of radical openness, the idea that Wikipedia is a creation of the great mass of humanity in all its hairy glory. It's a myth encapsulated in Wikipedia's description of itself as 'the free encyclopedia that anyone can edit'. As we now know, that's never been precisely true. According to cofounder Jimmy Wales, there have always been filtering mechanisms to restrict certain people's ability to edit certain articles. Those mechanisms have been expanded and tightened over time. In Wikipedia's early days, the encyclopedia asked contributors to maintain a 'neutral point of view', but, as the official history of Wikipedia notes,[8] 'There were otherwise few rules initially'. Since then, rules have proliferated, as the encyclopedia has adopted a de facto bureaucratic structure.

But the myth of Wikipedia's radical openness has continued to flourish, with myriad print and online articles replaying the blanket statement that anyone can edit anything on Wikipedia at any time. Today it's commonly believed that Wikipedia is truly an encyclopedia that 'anyone can edit', without restriction. Wales himself has helped, perhaps inadvertently, to promulgate this myth by glossing over Wikipedia's controls in some of his public comments. In an interview with *CIO Insight* last June, for instance, he said, 'The wiki leaves everything completely open-ended for the users to determine. People don't have to get permission to do something useful [...] We let everyone in the general public edit Wikipedia'. [9] If you do a search for 'openness' on Google, you'll find the first result is the Wikipedia entry for the term, an entry that concludes self-referentially: 'Wikipedia and its related sites are examples of openness in the web environment'. [10]

6. Ibid.
7. Nicholas Carr, 'The Death of Wikipedia', Rough Type, 24 May 2006, http://www.roughtype.com/archives/2006/05/the_death_of_wi.php
8. Wikipedia contributors, 'Wikipedia', http://en.wikipedia.org/wiki/Wikipedia.
9. Edward Cone, 'Wikipedia Founder Pitches Openness to Content Managers', *CIO Insight*, 5 June 2005, http://www.cioinsight.com/article2/0,1540,1826166,00.asp.
10. Wikipedia contributors, 'Openness', http://en.wikipedia.org/wiki/Openness.

Many distinguished commentators have picked up on this theme, further inflating and spreading the myth of 'complete openness'. In a 2005 article, MIT's *Technology Review* offered a typical description of Wikipedia when it stated that 'anyone can publish or edit any article instantly'. [11] Mitch Kapor, one of Wikipedia's most eloquent advocates, has spoken, often in glowing terms, of Wikipedia's supposedly unfettered openness. At a talk at Berkeley last November, for example, he said, 'Anyone can edit any article at any time. Not only is this approximately true, it is literally true, which is one of the most striking things'. [12] Stewart Brand, in describing a speech by Jimmy Wales on April 14, 2006, praised Wikipedia's 'total openness to participants, especially new ones', saying that 'problems are dealt with completely post facto'. [13] Note the rhetoric here, which is telling: 'completely open-ended', 'literally true', 'total openness', 'completely post facto'. And note, too, that none of it is accurate.

I bought into the myth myself, I'm ashamed to say. In composing my requiem for Wikipedia yesterday, I originally wrote, 'There was a time when, indeed, anyone could edit anything on Wikipedia'. No, it turns out, there was never such a time. It was a myth from the very start.

But 'openness' is only the very tip of the mythical iceberg that Wikipedia has become. The bigger myth is that Wikipedia is an emanation of collective intelligence or, in the popular phrase, the 'wisdom of the crowd'. In this view, Wikipedia has a completely flat, non-hierarchical structure. It is a purely egalitarian collective without any bureaucracy or even any management. There's no authority. Here's how Kapor puts it:

> What people assume is someone has to be in charge if it's going to be any good. And I love talking to people about the Wikipedia who don't know about it because it helps people find their deep-seated unexamined belief that authority is a necessary component of all working social systems. Having grown up in the Sixties and kind of having problems with authority, I love this because it's a great counter-example. It's no longer theoretical. In a conventional sense, nobody is in charge. [14]

This myth made the leap into the very center of the mainstream press a couple of weeks ago when *Time* magazine named Jimmy Wales one of the 'hundred people who shape our world' The profile of Wales ended with a flight of fancy:

> Today Wales is celebrated as a champion of Internet-enabled egalitarianism [...] Everyone predicted that [Wikipedia's] mob rule would lead to chaos. Instead it has led to what may prove to be the most powerful industrial model of the 21st century: peer production. Wikipedia is proof that it works, and Jimmy Wales is its prophet. [15]

11. Wade Roush, 'Larry Sanger's Knowledge Free-For-All, *Technology Review*, January 2005, http://www.technologyreview.com/read_article.aspx?id=14071&ch=biztech.
12. 'Kapor on Wikipedia at SIMS', http://castingwords.com/transcripts/Qp/5415.html.
13. Tim O'Reilly, 'Wikipedia and the Future of Free Culture', O'Reilly Radar, 15 April 2006, http://radar.oreilly.com/archives/2006/04/wikipedia_and_the_future_of_fr.html.
14. 'Kapor on Wikipedia at SIMS'.
15. Chris Anderson, 'Jimmy Wales', *Time*, 30 April 2006, http://www.time.com/time/magazine/article/0,9171,1187286,00.html.

The reason Wikipedia's 'mob rule' did not lead to chaos is because there is no 'mob rule' at Wikipedia. Wikipedia has laws, written down in good bureaucratese, and it has a hierarchy of administrators and what Wales calls 'good editors' to 'police' the site. Here is how Daniel Pink, in a 2003 Wired article, described Wikipedia's very un-mob-like 'power pyramid':

> At the bottom are anonymous contributors, people who make a few edits and are identified only by their IP addresses. On the next level stand Wikipedia's myriad registered users around the globe [...] Some of the most dedicated users try to reach the next level – administrator. Wikipedia's 400 administrators [...] can delete articles, protect pages, and block IP addresses. Above this group are bureaucrats, who can crown administrators. The most privileged bureaucrats are stewards. And above stewards are developers, 57 superelites who can make direct changes to the Wikipedia software and database. There's also an arbitration committee that hears disputes and can ban bad users. At the very top, with powers that range far beyond those of any mere Wikipedian mortal, is Wales. [16]

As I've said in the past, Wikipedia is an amazing achievement, with considerable strengths and considerable weaknesses. But it has become wrapped in a cloak of myth that many people, for whatever reason, seem intent on perpetuating. Wikipedia is not an egalitarian collective. It is not an example of mob rule. It is not an expression of collective intelligence. It is not an emergent system. What might in fact be most interesting about Wikipedia as an organization is the way it has evolved, as it has pursued its goal of matching the quality of *Encyclopaedia Britannica*, toward a more traditional editorial, and even corporate, structure. We need to bury the Wikipedia myth if we're to see what Wikipedia is and what it isn't – and what it portends for the organization and economics of content creation in the years ahead.

Emergent Bureaucracy

10 July 2006

What a disappointing species we are. Stick us in a virgin paradise, and we create great honeycombed bureaucracies, vast bramble-fields of rules and regulations, ornate politburos filled with policymaking politicos, and, above all, tangled webs of power. Freed from history, freed from distance, freed even from our own miserable bodies, we just dig deeper holes in the mire. We fall short of our own expectations.

Witness Wikipedia. For some of us, the popular online encyclopedia has become more interesting as an experiment in emergent bureaucracy than in emergent content. Slashdot [17] today points to Dirk Riehle's fascinating interview with three high-ranking Wikipedians, Angela

16. Daniel H. Pink, 'The Book Stops Here', *Wired* 13.03, March 2005, http://www.wired.com/wired/archive/13.03/wiki.html?pg=3.
17. 'Interview Looks at How and Why Wikipedia Works', Slashdot, 10 July 2006, http://slashdot.org/article.pl?sid=06/07/10/0353220&from=rss.

Beesley, Elisabeth 'Elian' Bauer, and Kizu Naoko.[18] They describe Wikipedia's increasingly complex governance structure, from its proliferation of hierarchical roles to its 'career paths' to its regulatory committees and processes to its arcane content templates. We learn that working the bureaucracy tends to become its own reward for the most dedicated Wikipedians: 'Creating fewer articles as time goes on seems fairly common as people get caught up in the politics and discussion rather than the editing'.

And we learn that the rules governing the deletion of an entry now take up '37 pages plus 20 subcategories.' For anyone who still thinks of Wikipedia as a decentralized populist collective, the interview will be particularly enlightening. Wikipedia is beginning to look something like a post-revolutionary Bolshevik Soviet, with an inscrutable central power structure wielding control over a legion of workers.

It will be interesting to watch how those workers respond as they confront the byzantine bureaucracy that's running the show. Will they continue to contribute, or will they become alienated and abandon the project? As Angela Beesley remarks, 'The biggest challenge [for Wikipedia] is to maintain what made us who and what we are: the traditional wiki model of being openly editable'. Kizu Naoko singles out 'lack of involvement' as a major threat to the project: 'we need to go back to the first and foremost challenge: To keep the openness of the wikis that makes it easy for people to join'. The fate of Wikipedia – and perhaps the general 'participative' or 'open source' organizational model of online production – appears to hinge on how the tension between openness and bureaucracy plays out.

There was one passage in the interview that was of particular personal interest to me. Some time ago, I proposed the Law of the Wiki: 'Output quality declines as the number of contributors increases'.[19] At the time, I was heavily criticized by leading members of the wiki community, including Wikipedia founder Jimmy Wales and wiki-preneur Ross Mayfield, who argued that the opposite was true – that the more contributors an entry attracts, the higher its quality becomes. So I was gratified to find my Law of the Wiki confirmed by the interviewees:

> Dirk Riehle: What about the 'collective intelligence' or 'collective wisdom' argument: That given enough authors, the quality of an article will generally improve? Does this hold true for Wikipedia?
>
> Elisabeth 'Elian' Bauer: No, it does not. The best articles are typically written by a single or a few authors with expertise in the topic. In this respect, Wikipedia is not different from classical encyclopedias.
>
> Kizu Naoko: Elian is right.

18. Dirk Riehle, 'How and Why Wikipedia Works: An Interview with Angela Beesley, Elisabeth Bauer, and Kizu Naoko', In *Proceedings of the 2006 International Symposium on Wikis (WikiSym '06)*. ACM Press, 2006, pp. 3-8.
19. Nicholas Carr, 'The Law of the Wiki', Rough Type, 18 October 2005, http://www.roughtype.com/archives/2005/10/the_law_of_the.php.

There you have it: Experts matter. And they matter more than the 'community'. Indeed, 'a single or a few authors with expertise' will trump the alleged wisdom of the crowd.

Deletionists, Inclusionists and Delusionists

5 September 2006

'When you come to a fork in the road', Yogi Berra said, 'take it'. Wikipedia has come to a fork in the road, and it should pay heed to Berra's advice.

The rules that govern how the popular online encyclopedia works are set by its community of contributors – the so-called wikipedians – through a process of argument and consensus-building. But the community has begun to split into two warring camps with contrary philosophies about Wikipedia's identity and purpose. On one side are the deletionists; on the other are the inclusionists. Between them is not a middle ground but a no-man's-land. As one Wikipedia observer recently put it, 'The inclusionist versus deletionist debate is as firm and strong as the abortion debate, gun control debate, or the death penalty debate'.[20]

The adherents of inclusionism believe that there should be no constraints on the breadth of the encyclopedia – that Wikipedia should include any entry that any contributor wants to submit. An article on a small-town elementary school is no less worthy for inclusion than an article on Stanford University. The supporters of deletionism, in contrast, believe in weeding out entries that they view as trivial or otherwise inappropriate for a serious encyclopedia. Here's how the encyclopedia itself describes the two camps:

> Deletionism is a philosophy held by some Wikipedians that favors clear and relatively rigorous standards for accepting articles, templates or other pages to the encyclopedia. Wikipedians who broadly subscribe to this philosophy are more likely to request that an article that they believe does not meet such standards be removed, or deleted. Conversely, Wikipedians who believe that there ought to be a place for an article on almost any topic in Wikipedia, and that there should be few or no standards barring an article from it, are said to subscribe to inclusionism.[21]

There is an Association of Inclusionist Wikipedians,[22] with 207 members at the moment. Their slogan is 'Wikipedia is not paper'. Because there are no physical constraints on the encyclopedia's size, they see no reason to limit the number of entries. Let's focus on making each entry as good as possible, they say, not on picking which entries should stay and which should be deleted. There is as well an Association of Deletionist Wikipedians,[23] currently with 144 members. They have a slogan of their own: 'Wikipedia is not a junkyard'. To them, Wiki-

20. Jeff Atwood, 'Wikipedia: Inclusionists vs. Deletionists', Coding Horror, 13 April 2006, http://www.codinghorror.com/blog/archives/000567.html.
21. Wikipedia contributors, 'Deletionism', http://meta.wikimedia.org/wiki/Deletionism.
22. Wikimedia contributors, 'Association of Inclusionist Wikipedians', http://meta.wikimedia.org/wiki/Association_of_Inclusionist_Wikipedians.
23. Wikimedia contributors, 'Association of Deletionist Wikipedians', http://meta.wikimedia.org/wiki/Association_of_Deletionist_Wikipedians.

pedia needs to be seen as a whole, not just as a vast assortment of discrete entries. Deleting entries is, in their view, essential to improving the quality of the overall work.

To the inclusionists, Wikipedia is in essence a wiki. It's an example of an entirely new form for collecting knowledge, a form unbound by the practices of the past. To the deletionists, Wikipedia is in essence an encyclopedia. It's an example of an established form for collecting knowledge (albeit with a new production and distribution model), with traditions that deserve respect. The split between deletionists and inclusionists is thus a manifestation of an identity crisis that has always been inherent in Wikipedia. From the start, Wikipedia has pursued two conflicting goals: to be an open encyclopedia that anyone can edit, and to be a serious encyclopedia that is as good as the best print encyclopedia. In the early years of Wikipedia's existence, when it was viewed mainly as a curiosity, the tension between those goals was easy to overlook. Nobody really cared. But as Wikipedia has become more popular – and as it has begun to be held to a higher standard of quality – the tension has reached the snapping point. The inclusionists' desire for openness and the deletionists' desire for seriousness are both worthy goals. But, as the diametrically opposed missions of the two camps reveal, they are also mutually exclusive goals. You can't be a deletionist and an inclusionist at the same time.

At a deeper level, the split between the deletionists and the inclusionists is yet another example of the fundamental epistemological crisis of our time: the battle between absolutists and relativists. The deletionists are absolutists. They believe that some subjects are simply more significant than others, that absolute distinctions can and should be drawn among different kinds of knowledge. John Milton is more important than George Jetson. The inclusionists are relativists. No subject is inherently more significant than any other, they believe. It all depends on context. John Milton will be more important than George Jetson for some people. But for others, George Jetson will be more important. There are no absolutes; it's all relative.

The tension between the inclusionists and the deletionists is not merely theoretical. Entries are being deleted and 'undeleted' from Wikipedia all the time [24] – as the recent dust-up [25] over the deletion and reinsertion of the entry for 'Enterprise 2.0' shows – and the practice of and criteria [26] for deleting entries are sources of constant and often bitter debate among wikipedians.

Whether the deletionists or the inclusionists gain the upper hand will determine Wikipedia's future scope and quality. If the deletionist philosophy prevails, the inclusionist Wikipedia will be lost forever; we will never know what a truly open encyclopedia – a truly wikified encyclopedia – would ultimately look like. If the inclusionist philosophy prevails, the deletionists' ambitions for Wikipedia will go unfulfilled. We'll never know how good, by traditional standards, an encyclopedia created by volunteers might have been.

24. Wikipedia contributors, 'User/Dragons Fight/AFD Summary/All', http://en.wikipedia.org/wiki/User:Dragons_flight/AFD_summary/All.
25. Wikipedia contributors, 'Wikipedia:Articles for deletion/Enterprise 2.0 (second nomination)', http://en.wikipedia.org/wiki/Wikipedia:Articles_for_deletion/Enterprise_2.0_%28second_nomination%29.
26. Wikipedia contributors, 'Wikipedia:Notability', http://en.wikipedia.org/wiki/Wikipedia:Notability.

The best way forward in this case – the way that creates the least harm – may not be through the process of consensus-building. Trying to find common ground between the deletionists and the inclusionists seems a futile exercise – in fact, those [27] who seek compromise between the two camps are known as 'delusionists'. [28] The time may have come to form two competing Wikipedias – to 'fork' the encyclopedia, as software programmers would say. Let the deletionists and the inclusionists pursue their separate ideals separately – and let users decide which version best suits their needs. Now, there's something to build on.

Rise of the Wikicrats

23 August 2007

It's over. The Deletionists won.

'It's like I'm in some netherworld from the movie Brazil, being asked for my Form 27B(stroke)6', writes the media scholar and long-time Wikipedian Andrew Lih. [29] He's describing what it's like these days to contribute to Wikipedia, the 'encyclopedia that anyone can edit'. Lih recently noticed that Wikipedia lacked an article on Michael Getler, a reporter who now serves as ombudsman for the Public Broadcasting System. Lih added a brief entry – a 'stub', in Wikipedia parlance – assuming that other contributors would flesh it out in due course. Within minutes, though, one of the site's myriad wikicops had swooped in and marked Lih's entry as a candidate for 'speedy deletion', citing the site's increasingly arcane legal code:

> It is a very short article providing little or no context (CSD A1), contains no content whatsoever (CSD A3), consists only of links elsewhere (CSD A3) or a rephrasing of the title (CSD A3).

Lih's reaction: 'What the ... what manner of ... who the ... how could any self-respecting Wikipedian imagine this could be deleted? I've been an editor since 2003, an admin with over 10,000 edits and I had never been this puzzled by a fellow Wikipedian'. After some more digging, he discovered that the rapid deletion of new articles has become rampant on the site. Deletionism [30] has become Wikipedia's reigning ethic. Writes Lih:

27. Wikimedia contributors, 'Association of Wikipedians Who Dislike Making Broad Judgments About the Worthiness of a General Category of Article, and Who Are in Favor of the Deletion of Some Particularly Bad Articles, but That Doesn't Mean They Are Deletionists', http://meta.wikimedia.org/wiki/Association_of_Wikipedians_Who_Dislike_Making_Broad_Judgments_About_the_Worthiness_of_a_General_Category_of_Article,_and_Who_Are_in_Favor_of_the_Deletion_of_Some_Particularly_Bad_Articles,_but_That_Doesn%27t_Mean_They_Are_Deletionists.
28. Wikimedia contributors, 'Delusionism', http://meta.wikimedia.org/wiki/Delusionism.
29. Andrew Lih, 'Unwanted: New Articles in Wikipedia', 10 July 2007, http://www.andrewlih.com/blog/2007/07/10/unwanted-new-articles-in-wikipedia/.
30. Nicholas Carr, 'Deletionists, Inclusionists and Delusionists', Rough Type, 5 September 2006 http://www.roughtype.com/archives/2006/09/a_fork_in_wikip.php.

> It's incredible to me that the community in Wikipedia has come to this, that articles so obviously 'keep' just a year ago, are being challenged and locked out. When I was active back on the mailing lists in 2004, I was a well known deletionist. 'Wiki isn't paper, but it isn't an attic', I would say. Selectivity matters for a quality encyclopedia.
>
> But it's a whole different mood in 2007. Today, I'd be labeled a wild eyed inclusionist. I suspect most veteran Wikipedians would be labeled a bleeding heart inclusionist too. How did we raise a new generation of folks who want to wipe out so much, who would shoot first, and not ask questions whatsoever? It's as if there is a Soup Nazi culture now in Wikipedia. There are throngs of deletion happy users, like grumpy old gatekeepers, tossing out customers and articles if they don't comply to some new prickly hard-nosed standard.

But, given human nature, is it really so 'incredible' that Wikipedia has evolved as it has? Although writers like Yochai Benkler have presented Wikipedia as an example of how wide-scale, volunteer-based 'social production' on the Internet can exist outside hierarchical management structures, the reality is very different. As Wikipedia has grown, it has developed a bureaucracy that is remarkable not only for the intricacies of its hierarchy but for the breadth and complexity of its rules. The reason Deletionism has triumphed so decisively over Inclusionism is pretty simple: It's because Deletionism provides a path toward ever more elaborate schemes of rule-making – with no end – and that's the path that people prefer, at least when they become members of a large group. The development of Wikipedia's organization provides a benign case study in the political malignancy of crowds.

'Gone are the days of grassroots informality', writes a saddened Lih in another post.[31] 'Has the golden age of Wikipedia passed?'

Maybe the time has come for Wikipedia to amend its famous slogan. Maybe it should call itself 'the encyclopedia that anyone can edit on the condition that said person meets the requirements laid out in Wikipedia Code 234.56, subsections A34-A58, A65, B7 (codicil 5674), and follows the procedures specified in Wikipedia Statutes 31 - 1007 as well as Secret Wikipedia Scroll SC72 (Wikipedia Decoder Ring required)'.

31. Andrew Lih, 'Wikipedia Plateau?' 28 June 2007, http://www.andrewlih.com/blog/2007/06/28/wikipedia-plateau/.

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DIARY OF A YOUNG WIKIPEDIAN

ALAN N. SHAPIRO

In novels like *Sentimental Education* and *Bouvard and Pécuchet* and his comic inventory of clichés and repeated ideas, *Dictionnaire des Idées Reçues*, the great 19th century French writer Gustave Flaubert made fun of 18th and 19th century attempts to catalogue, classify, list, and record all of scientific and historical knowledge. To what extent is Wikipedia an unaware continuation of the 'Enlightenment' projects that Flaubert so brilliantly mocked?

Karin Oenema writes:

> Unlike the other speakers, such as [Ramón] Reichert (Foucault-inspired), Shapiro said that he is less critical [of Wikipedia]: 'The critique is all right, however, it should be a component of a larger view, and the larger view should be pragmatic and constructive.' According to Shapiro, [Jeannette] Hofmann's ideology critique is insufficient. Blindness and ignorance are a weak thesis within ideology critique. Shapiro is inspired by the work of Gustave Flaubert: 'He shows that knowledge is based in society and as such Wikipedia not only represents knowledge, but also stupidity. And what most people believe in society is based on accepted clichés.' We must separate the real knowledge from the clichés and the stupidities.
>
> Shapiro says that Wikipedia is about the democratization of knowledge and the promise of popular education (an [Antonio] Gramsci-inspired view). We need balance between the consensus culture such as Wikipedia and respect for the work of the scholar who has dedicated a lot of research on particular issues. A model for balancing these two contributory streams needs to be developed. So, is Wikipedia cool? Shapiro thinks that baseball fans think that Wikipedia is cool. A lot of these articles on baseball are really good because they are based on information in a non-controversial area instead of a mixture of clichés and real knowledge in controversial areas, as in many articles. During his talk, Alan showed some examples in the Baudrillard article at Wikipedia. In this example one of the clichés is that Baudrillard would be a philosopher; but Baudrillard never considered himself to be a philosopher so you can't describe him that way according to Shapiro. Another example is that Baudrillard also has been described as a sociologist, but he disliked sociology, was skeptical towards the concepts of politics, and did not consider himself to be a sociologist. The Wikipedia article mentions Baudrillard's collaboration with CTHEORY (which [perhaps] really happened, and they published translations of many of his essays), but fails to mention his crucial and essential collaborations with the French journals *Utopie* and *Traverses*. During his long enumeration, Shapiro received a question from the audience if [he] ever pushed the submit button. He did, and he is now going to undertake the project of trying to submit

step-by-step revisions of the Wikipedia articles on Baudrillard, *Star Trek*, and Flaubert's novel *Bouvard and Pécuchet*. [1]

In this chapter, I will document my recent efforts to submit revisions of a number of Wikipedia articles. I have tried to add more historical and cultural context to the articles, moving away from the ideology of 'just the facts' as first step to take to radicalize Wikipedia. We must deconstruct Wikipedia from within, using a Trojan Horse strategy.

I do a search on 'Jean Baudrillard' at google.com. The first result that comes up is the Wikipedia article on Baudrillard. [2] I begin by changing Baudrillard's birthday, which was incorrect. It is 27 July 1929. This change was accepted by the Wikipedia gatekeepers of this particular domain. My Mom is about the same age as Baudrillard. She was born on 29 May 1930. Happy 80th Birthday, Mom! (John F. Kennedy was also born on May 29th.)

April 1:
Changing the first paragraph of the Baudrillard article would be too risky to start with. I'll get to that later. I start with the section 'Life':

> Baudrillard was born in Reims, north-eastern France, on July 27, 1929. He told interviewers that his grandparents were peasants and his parents were civil servants. He became the first of his family to attend university when he moved to Paris to attend Sorbonne University.[3]. There he studied German, which led to him to begin teaching the subject at a provincial lycée, where he remained from 1958 until his departure in 1966. While teaching, Baudrillard began to publish reviews of literature and translated the works of such authors as Peter Weiss, Bertolt Brecht and Wilhelm Mühlmann[4]

I changed this to:

> Baudrillard was born in Reims, northeastern France, on July 27, 1929. He told interviewers that his grandparents were peasants and his parents were civil servants. During his high school studies at the Reims Lycée, he came into contact with pataphysics (via the philosophy professor Emmanuel Peillet). Pataphysics is crucial for understanding Baudrillard's system of thought.[3] He became the first of his family to attend university when he moved to Paris to attend Sorbonne University.[4]. There he studied German language and literature, which led to him to begin teaching the subject at several different lycées, both Parisian and provincial, from 1960 until 1966.[5] While teaching, Baudrillard began to publish reviews of literature and translated the works of such authors as Peter Weiss, Bertolt Brecht, Karl Marx, Friedrich Engels, and Wilhelm Mühlmann[6]

1. Karin Oenema, 'Shapiro: Wikipedia Provides Intelligence but not Intelligence and Stupidity', Critical Point of View weblog, 28 March 2010, http://networkcultures.org/wpmu/cpov/lang/de/2010/03/28/shapiro-wikipedia-provides-intelligence-but-not-intelligence-about-stupidity/.
2. Wikipedia contributors, 'Jean Baudrillard', http://en.wikipedia.org/wiki/Jean_Baudrillard, accessed 1 April 2010.

Pataphysics and Karl Marx!

Three new references are:

> 3 - ^ Francois L'Yvonnet, ed., Cahiers de l'Herne special volume on Baudrillard, Editions de l'Herne, 2004, p.317
> 5 - ^ Francois L'Yvonnet, ed., Cahiers de l'Herne special volume on Baudrillard, Editions de l'Herne, 2004, p.317
> 6 - ^ Francois L'Yvonnet, ed., Cahiers de l'Herne special volume on Baudrillard, Editions de l'Herne, 2004, p.322

April 2:
No controversy about my first significant changes!

Now to the second paragraph of 'Life':

> Toward the end of his time as a German teacher, Baudrillard began to transfer to sociology, eventually completing his doctoral thesis *Le Système des objets* (*The System of Objects*) under the tutelage of Henri Lefebvre. Subsequently, he began teaching the subject at the Université de Paris-X Nanterre, at the time a politically radical institution which would become heavily involved in the events of May 1968.[7] At Nanterre he took up a position as *Maître Assistant* (Assistant Professor), then *Maître de Conférences* (Associate Professor), eventually becoming a professor after completing his accreditation, *L'Autre par lui-même* (*The Other, by himself*).

New version written by me:

> During his time as a teacher of German language and literature, Baudrillard began to transfer to sociology, eventually completing his doctoral thesis *Le Système des objets* (*The System of Objects*) under the dissertation committee of Henri Lefebvre, Roland Barthes, and Pierre Bourdieu. Subsequently, he began teaching sociology at the Université de Paris-X Nanterre, a university campus just outside of Paris which would become heavily involved in the events of May 1968.[7] At Nanterre he took up a position as *Maître Assistant* (Assistant Professor), then *Maître de Conférences* (Associate Professor), eventually becoming a professor after completing his accreditation, *L'Autre par lui-même* (*The Other by Himself*).
>
> In 1970, Baudrillard made his first of many trips to the USA (Aspen). His observations about America are crucial for understanding his thought. In 1973, Baudrillard made his first of several trips to Japan (Kyoto). His observations about Japan are essential for understanding his thinking.

Barthes and Bourdieu! America Studies and Japan Studies!

I don't think that Nanterre was a politically radical institution before the student uprising.

Now I will start to make revisions to the main Wikipedia article on *Star Trek*.[3]

Before my talk at the CPOV conference, the first paragraph of the main *Star Trek* article looked like this:

> *Star Trek* is an American science fiction entertainment series. The original *Star Trek* is an American television series, created by Gene Roddenberry, which debuted in 1966 and ran for three seasons, following the interstellar adventures of Captain James T. Kirk and the crew of the Federation Starship *Enterprise*. These adventures were continued in an animated television series and six feature films. Four more television series were produced, based in the same universe but following other characters: *Star Trek: The Next Generation*, following the crew of a new Starship *Enterprise* set several decades after the original series; *Star Trek: Deep Space Nine* and *Star Trek: Voyager* set contemporaneously with *The Next Generation*; and *Star Trek: Enterprise*, set in the early days of human interstellar travel. Four additional feature films were produced, following the crew of *The Next Generation*, and most recently a 2009 movie reboot of the series featuring a young crew of the original *Enterprise* set in an alternate time line.

Now, mysteriously, one phrase was changed to:

'*Star Trek: The Next Generation*, following the crew of a new Starship *Enterprise* set almost a century after the original series';

It seems that someone heard what I said at the conference about *The Next Generation* taking place a hundred years after *The Original Series*, and not several decades after it!

Here's my new version of the first paragraph of the article:

> *Star Trek* is an American science fiction television and film series that has transcended its context of entertainment. It has shaped and formatively influenced culture, ideas, technologies, sciences, and even race relations. The original *Star Trek* was created by Gene Roddenberry. It debuted in 1966 and ran for three seasons. Like the Bible and Shakespeare, Star Trek is increasingly understood as being a great text of Western Civilization, and it is now studied in this way by literary criticism and literary theory.[1] The original pilot film of Star Trek, 'The Cage', was made in 1964, starring Jeffrey Hunter as Captain Christopher Pike of the Federation Starship *Enterprise*. It elaborates many of the major literary and technological themes that are hallmarks of the entire Star Trek franchise. Roddenberry was very influenced in his creation of Star Trek by the 1956 science fiction film Forbidden Planet. After saying no to Star Trek in 1965 because it was too cerebral and not suited to serial production, NBC Television Network executives asked that a second pilot film be made.[2] Hunter then turned down the leading role, and it was given to William Shatner as Captain James T. Kirk. Following the release of other series in the franchise, the Kirk-headed series was retroactively referred to as '*Star Trek: The Original Series*'. These adventures were continued by the short-lived *Star Trek: The Animated Series* and six feature films. Four more television series were eventually produced, based in the same universe but following other characters: *Star Trek: The Next Generation*, following the crew of a new Starship *Enterprise* set almost a century after the original series; *Star Trek: Deep Space Nine* and *Star Trek: Voyager*, set contemporaneously with *The Next Generation*; and *Star Trek: Enterprise*, set before the original series, in the early days of human interstellar travel. Four additional feature films were produced, following the crew of *The Next Generation*, and most recently a 2009 movie reboot of the franchise featuring a young crew of the original *Enterprise* set in an alternate time line.

3. Wikipedia contributors, 'Star Trek', http://en.wikipedia.org/wiki/Star_trek, accessed 2 April 2010.

Star Trek transcends entertainment! *Star Trek* is a great text of Western civilization. One cannot underestimate the importance of the original pilot film *The Cage*. Nor can one underestimate the importance of *The Animated Series*, and of animation generally.

A few hours later, all these changes were reverted, and I received the following message at my user page:

> *Star Trek changes*
> Your well-intentioned changes to the lead in of the *Star Trek* article were undone by me as a violation of WP's neutral point of view policy. (See WP:NPOV and WP:Undue Weight). However, I would encourage you to write something about the academic field of 'Star Trek studies' in a slightly more neutral way in the chapter entitled 'Cultural impact' of the same article. It *is* notable that Trek is studied in colleges, as reflecting Western culture.--WickerGuy (talk) 14:39, 2 April 2010 (UTC)[4]

I reply to WickerGuy:

'I think that some of my changes are about facts, and not about the academic field of 'Star Trek studies'. I will try to put in some of these factual changes again, one sentence at a time, and see what you think. I hope that that is OK with you'.

And I added one sentence back to the first paragraph of the article:

'The original pilot film of Star Trek, 'The Cage', was made in 1964, starring Jeffrey Hunter as Captain Christopher Pike'.

This change was accepted.

4. Wikipedia contributors, 'User Alan Shapiro', 'http://en.wikipedia.org/wiki/User_talk:AlanNShapiro'.

April 3:
Baudrillard article:

The last paragraph of 'Life' reads as follows:

> In 1986 he moved to IRIS (Institut de Recherche et d'Information Socio-Économique) at the Université de Paris-IX Dauphine, where he spent the latter part of his teaching career. During this time he had begun to move away from sociology as a discipline (particularly in its 'classical' form), and, after ceasing to teach full time, he rarely identified himself with any particular discipline, although he remained linked to the academic world. During the 1980s and 1990s his books had gained a wide audience, and in his last years he became, to an extent, an intellectual celebrity,[9] being published often in the French- and English-speaking popular press. He nonetheless continued supporting the Institut de Recherche sur l'Innovation Sociale at the Centre National de la Recherche Scientifique and was *Satrap* at the Collège de Pataphysique. He also collaborated at the Canadian philosophical review *Ctheory*, where he was abundantly cited.

I made changes to the third and fourth paragraphs of 'Life':

> In 1970, Baudrillard made his first of many trips to the USA (Aspen). His observations about America are crucial for understanding his thought. In 1973, Baudrillard made his first of several trips to Japan (Kyoto). His observations about Japan are essential for understanding his thinking. He was given his first camera in 1981 in Japan, which led to his becoming a photographer.[8]
>
> In 1986 he moved to IRIS (Institut de Recherche et d'Information Socio-Économique) at the Université de Paris-IX Dauphine, where he spent the latter part of his teaching career. During this time he had begun to move away from sociology as a discipline (particularly in its 'classical' form), and, after ceasing to teach full time, he rarely identified himself with any particular discipline, although he remained linked to the academic world. During the 1980s and 1990s his books had gained a wide audience, and in his last years he became, to an extent, an intellectual celebrity,[9] being published often in the French- and English-speaking popular press. He nonetheless continued supporting the Institut de Recherche sur l'Innovation Sociale at the Centre National de la Recherche Scientifique and was *Satrap* at the Collège de Pataphysique. He also collaborated at the Canadian theory, culture and technology review *Ctheory*, where he was abundantly cited. In 1999-2000, his photographs were exhibited at the Maison européenne de la photographie in Paris.[10] In 2004, Baudrillard attended the major conference on his work, 'Baudrillard and the Arts', at the Center for Art and Media Karlsruhe in Karlsruhe, Germany.[11]

All of my Baudrillard changes have been accepted!

April 4:
There are many Wikipedia articles about *Star Trek*. I made changes to the first paragraph of the article 'Star Trek: The Original Series'. 5 It now reads like this:

> *Star Trek* is a science fiction television series created by Gene Roddenberry that aired on NBC from September 8, 1966, to March 14, 1969. The final episode, 'Turnabout Intruder', was not shown until summer reruns of 1970'.[1] Though the original series was titled *Star Trek*, it has acquired the retronym *Star Trek: The Original Series* (*ST:TOS* or *TOS*) to distinguish it from the spinoffs that followed, and from the Star Trek universe or franchise that they make up. Set in the 23rd century,[2] the original *Star Trek* follows the adventures of the starship *Enterprise* and its crew, led by Captain James T. Kirk (William Shatner), his First and Science Officer Mr. Spock (Leonard Nimoy), and his Chief Medical Officer Dr. Leonard McCoy (DeForest Kelley). William Shatner's voice-over introduction during each episode's opening credits stated the starship's purpose:
>
> > Space: the final frontier. These are the voyages of the starship *Enterprise*. Its five-year mission: to explore strange new worlds, to seek out new life and new civilizations, to boldly go where no man has gone before.

They had this incorrect fact:

'*Star Trek* is a science fiction television *series* created by Gene Roddenberry that aired on NBC from September 8, 1966, to June 3, 1969.'

And they had Spock only as 'First Officer', and left out McCoy's Dr. title.

April 6:
I changed the first sentence of the article on 'Star Trek: The Original Series':

'*Star Trek* is a science fiction television series created by Gene Roddenberry that aired on NBC from September 8, 1966, to March 14, 1969'.[1]

After originally saying that Nicholasm79 was right about the ending date of 'Star Trek: The Original Series', I have changed my mind. In the M*A*S*H article, the ending of M*A*S*H is considered to be 28 February 1983. Summer reruns are irrelevant. In the *Dallas* article, the ending of *Dallas* is considered to be 20 May 1993. Again, summer reruns are irrelevant. Therefore, *Star Trek* ended on 14 March 1969, with the showing of 'All Our Yesterdays', before summer reruns began. The fact that an additional episode, 'Turnabout Intruder', was aired at the end of summer reruns is a minor incidental fact. This fact deserves to be mentioned as part of the show's history, but it does not change the ending date of the show.

5. Wikipedia contributors, 'Star Trek: The Original Series', http://en.wikipedia.org/wiki/Star_Trek:_The_Original_Series, accessed 4 April 2010.

April 7:
'Star Trek: The Original Series' – they reverted it back to the false ending date of the show. Did *Star Trek: The Original Series* end on 14 March 1969 or on 3 June 1969? The question is undecidable. The cult of facts is wrong. Facts are open to interpretation. There are often two sides to every question.

Comments of mine on the CPOV listserv:

> <<Jon,
> that's a very good question, Jon, thanks for asking. The example of Peirce is excellent.
>
> I believe that a Peircian semiotic could be implemented on the Internet (or a successor to the Internet), and that this a very worthwhile goal. A sort of Peircian emphasis on content, meaning, or deep referent as counterpoint to what is currently happening on the Internet, which is the nightmare realization of the fundamental media-theory-insight of McLuhan-Baudrillard that 'the medium is the message' gone haywire, on drugs, so to speak. Content means nothing right now. Everything is links, links, links, where can I get my website or blog linked or ping-backed to as many other websites as possible. And this happening in the context of the rampant reign of Homo Economicus. More links to my website equals more visitors equals higher google ranking equals the dream of the pot of gold.
>
> Any chat of any kind today immediately deteriorates into: are you on Facebook?, are you registered at the Huffington Post?, do you have Skype?, MSN?, Yahoo Messenger?, etc. Meet me at odesk or elance and let's get exploited together. That's a nice app you've got, but does it run on iPad? Nice book there, but it is on Kindle? The media that overwhelms the message was TV for McLuhan-Baudrillard. Today that fetishized media is Facebook, skype, MSN, etc.
>
> And add to that list the fetish of 'just the facts, ma'am' of the Wikipedia gatekeepers.
>
> The second half of my answer to your question will be in the context of explaining something about my project which is my contribution to the conference reader. Focusing on *Star Trek* I am establishing myself as a good Wikipedia citizen making contributions which, on one level, are indeed adding to the mountain of fetishized facts. However, I am doing this with awareness in such a way that I simultaneously deconstruct from within the fetish of facts by subtly pointing out contextualizations, ambiguities, uncertainties, undecidabilities. Today, for example, on this very day, I was very involved with the *Star Trek* question: was the character Flint Shakespeare? (Flint is a character in *The Original Series* episode 'Requiem for Methuselah' who is immortal and was many of the great creators of human history, like DaVinci and Brahms). The 'fetish of facts' nitpickers will debate until the cows come home whether Flint was Shakespeare or not. Half will defend one thesis, half the other. Of course that's a ridiculous binary. The episode, which is in fact a brilliant literary story, presents evidence on both sides of the question and the question is undecidable.
>
> Alan, www.alan-shapiro.com [6]

6. Alan Shapiro, '<CPOV> A Critique of the idea of neutral language', CPOV listserve, 28 May 2010, http://listcultures.org/pipermail/cpov_listcultures.org/2010-May/000163.html.

May 28:
I return to the project.

Since it proved so difficult to make changes to the *Star Trek* article, I have decided to take a different approach.

I go to the article on 'Star Trek: Klingon'. [7]

I add:

> 'Klingons appeared in two Animated Series episodes: 'More Tribbles, More Troubles' and 'The Time Trap'.

These changes stick. They 'cling on'.

I go to the article on 'Star Trek: Klingon Language'.

I add:

> Klingon is sometimes referred to as Klingonese (most notably in the *Star Trek: The Original Series* episode 'The Trouble With Tribbles', where it was actually pronounced by a Klingon character as /klɪŋgoni/, and in 'Star Trek I: The Motion Picture'), but, among the Klingon-speaking community, this is often understood to refer to another Klingon language called Klingonaase that was introduced in John M. Ford's 1988 'Star Trek' novel *The Final Reflection*, and appears in other 'Star Trek' novels by Ford. A shorthand version of Klingonaase is called 'battle language.'
>
> It would be used intermittently in later movies featuring the original cast: in 'Star Trek V: The Final Frontier' and in 'Star Trek VI: The Undiscovered Country' (1991), where translation difficulties would serve as a plot device.
>
> The Klingon language has a following and numerous reference works. A description of the actual Klingon language can be found in Okrand's book 'The Klingon Dictionary' (published by Pocket Books, [[Simon & Schuster]], 1985, second edition with new addendum 1992, ISBN 0-671-74559-X). Other notable works include 'The Klingon Way' (with Klingon sayings and proverbs), 'Klingon for the Galactic Traveler' and the audio productions 'Conversational Klingon' and 'Power Klingon', which feature Lt. Commander Worf. There is a three-volume interactive multimedia language-learning CD-ROM set called 'Star Trek Klingon: The Ultimate Interactive Adventure'. It features Marc Okrand and Klingon Chancellor Gowron, and includes a Language Lab for vocabulary drill and an Immersion Studies interactive adventure. The latter is a film directed by Jonathan Frakes, converted to MPEG video, and enhanced with about a dozen interactive situations.

7. Wikipedia contributors, 'Star Trek Klingon', http://en.wikipedia.org/wiki/Star_Trek:_Klingon, accessed 28 May 2010.

> In the Star Trek mythology, the idea that the great creators of history were aliens (which eventually crystallized into the idea of Shakespeare being a Klingon) has its origin in The Original Series episode Requiem for Methuselah. Kirk, Spock, and McCoy beam down to the planet Holberg 917G in search of an antidote for deadly Rigellian fever. Living on the planet is an enigmatic humanoid male with superhuman powers named Flint. In illuminated bookcases in Flint's drawing room, McCoy is astounded to see a Shakespeare First Folio, a Gutenberg Bible, and the 'Creation' lithographs by Taranullus of Centaurus VII. Readings from Spock's tricorder indicate that Flint is six thousand years old, and that the artefacts are re-creations made with the flair of the original masters. When pressed for an explanation, he divulges that he is Brahms, da Vinci, Solomon, Alexander, Methuselah, and many others. Born in Mesopotamia in 3034 B.C., he has been some of the great minds and creators of human history. This is a powerful idea, and it is the introduction of such brilliant ideas into our consciousness that makes *Star Trek* great. The extraterrestrial influence on Flint is clear (similar to Gary Seven in Assignment: Earth), since *Star Trek* is basically about alien life in the galaxy. He has ventured into deep space, owns the Taranullus lithographs, and was the painter Stern from Marcus II.
>
> The Klingon Language (tlhIngan Hol), the Emperor's Klingon (ta' tlhIngan Hol), and the 'current standard way of speaking' (ta' Hol) all derive from the original language spoken by Kahless the Unforgettable, who united the people of Qo'noS more than 1500 years ago.<ref>Marc Okrand, 'Klingon for the Galactic Traveler'. Simon & Schuster, 1997.</ref>
>
> An important additional dimension of Klingon grammar is the reality of the language's ungrammaticality. A notable property of the language is its shortening or compression of communicative declarations. This abbreviating feature encompasses the techniques of Clipped Klingon (tlhIngan Hol poD or, more simply, Hol poD) and Ritualized Speech. Clipped Klingon is especially useful in situations where speed is a decisive factor. Grammar is irrelevant, and sentence parts deemed to be superfluous are dropped. Intentional ungrammaticality is widespread, and it takes many forms. It is exemplified by the practice of pabHa', which Marc Okrand translates as 'to misfollow the rules' or 'to follow the rules wrongly.' <ref>Marc Okrand, 'Klingon for the Galactic Traveler'. Simon & Schuster, 1997.</ref>

All these change clinged on!

I go to the article on 'Star Trek: Klingon Language Institute'. [8]

I add:

> The 'Klingon Language Institute' (KLI) is an independent organization located in Flourtown, Pennsylvania, USA. Its goal is to promote the Klingon language and culture.
> About 2500 members in over 50 countries all over the world have joined the KLI.

8. Wikipedia contributors, 'Klingon Language Institute', http://en.wikipedia.org/wiki/Klingon_Language_Institute, accessed 28 May 2010.

> {{FactIdate=January 2008}} For 13 years, it published a quarterly journal 'HolQeD' (Klingon for 'linguistics'), before discontinuing the paper mailings and changing to an electronic version with an irregular schedule. It also published the fiction and poetry magazine 'jatmey'.

Changes accepted!

I go to the article on 'Star Trek VI: The Undiscovered Country'. [9]

I add:

> In the film, Spock questions Gorkon's use of the phrase to refer to the future. After Gorkon raises his crystal goblet filled with deep blue Romulan ale and says: 'I give you a toast: The Undiscovered Country, the future', Spock replies: 'Hamlet, Act three, scene one. I do not understand. The quote clearly refers to the fear of death.'

David Fuchs the Wikipedia watchdog removed this without any explanation. Totally impolite.

I go to the article on 'The Klingon Dictionary'. [10]

I add:

> 'It has been an international bestseller, selling more than a half-million copies'.

Accepted.

I go to the article on the 'Universal Translator'. [11]

I add:

> The Star Trek: The Next Generation Technical Manual says that the Universal Translator is an 'extremely sophisticated computer program' which functions by 'analyzing the patterns' of an unknown foreign language, starting from a speech sample of two or more speakers in conversation. The more extensive the conversational sample, the more accurate and reliable is the 'translation matrix',, enabling instantaneous conversion of verbal utterances or written text between the alien language and American English / Federation Standard. Rick Sternbach and Michael Okuda, 'Star Trek: The Next Generation Technical Manual (introduction by Gene Roddenberry)', p. 101. Simon & Schuster, 1991.

9. Wikipedia contributors, 'Start Trek VI : The Undiscovered Country', http://en.wikipedia.org/wiki/Star_Trek_VI:_The_Undiscovered_Country, accessed 28 May 2010.
10. Wikipedia contributors, 'The Klingon Dictionary', http://en.wikipedia.org/wiki/The_Klingon_Dictionary, accessed 28 May 2010.
11. Wikipedia contributors, 'Universal Translator', http://en.wikipedia.org/wiki/Universal_Translator, accessed 28 May 2010.

> In the episode 'Arena (TOS episode)|Arena' the Metrons supply Captain Kirk and the Gorn commander with a Translator-Communicator, allowing conversation between them to be possible.

Changes accepted!

I am tempted to add the following interpretive paragraph:

> The Universal Translator is designed from a Kantian transcendental perspective. The Western scientist has reached the analytical summit of passionless objectivity, a 'transparent' vantage point from which he gazes out as detached observer at all other languages. He sees what they 'translate' or reduce to, the forms of equivalence of his own language. The 'own language' of the scientific observer, as an allegedly rhetoric-free zone, remains unexamined.

But I decide against it! Maybe I should add it ... but why rock the boat?

I go to the article on 'Star Trek: Organians'. [12]

I add:

> The Organians are not humanoids. They are incorporeal energy creatures with no precise physical location in the universe. They assumed humanoid form in order to 'interact' with the Federation representatives and the Klingons. They render all weapons belonging to the hostile parties inoperable, and then vanish.
>
> Mention is made of the 'Organian Peace Treaty' in The Original Series episodes 'The Trouble With Tribbles' and 'Day of the Dove.'

Changes accepted!

I go to the article on 'Seven of Nine'. [13]

I add:

> After the addition of the former Borg drone to the starship's crew at the start of the fourth season of *Voyager*, the shows's weekly viewer ratings soared by more than 60%. [3] Seven's arrival on the scene was accompanied by a massive publicity campaign in TV magazines and newspaper supplements.
>
> Seven's erect phallic posture, techno-scientific competence, stringently business-like speaking style, and indifference towards male erotic overtures in her direction make her

12. Wikipedia contributors, 'Organian', http://en.wikipedia.org/wiki/Organian, accessed 28 May 2010.
13. Wikipedia contributors, 'Seven of Nine', http://en.wikipedia.org/wiki/Seven_of_Nine, accessed 28 May 2010.

> an ambivalent boundary-crosser with both masculine and feminine semiotic and manneristic attributes. She is an examplar of the cyborg theory of Donna Haraway and the gender-as-performance ideas of Judith Butler.

These changes were accepted. Getting this last paragraph in is a major triumph! Maybe when some watchdog reads this article, then they'll go back and delete that! But isn't there a statute of limitations?

I go to the article on 'Borg (Star Trek)'. [14]

I add:

> Scholarly interpretation
> Inspired by Klaus Theweleit's psychoanalytic study of the proto-Nazi Freikorps, scholars like Scott Bukatman, Mark Dery, and Rosi Braidotti have identified the Borg as representing a significant anxiety of males with respect to their loss of power and increasing obsolescence in 'postmodern culture.' Men feel threatened by feminine liquidity and flows, and seek an armored body to fortify themselves against disintegration and contamination. They become hyper-masculine warriors corporeally enhanced with fetishistic high-tech prostheses.<ref>Klaus Theweleit, Male Fantasies, Minneapolis, University of Minnesota Press, 1987; Scott Bukatman, Terminal Identity: The Virtual Subject in Post-Modern Science Fiction, Durham, Duke University Press, 1993; Mark Dery, 'Slashing the Borg: Resisting is Fertile', Nettime, 1996; Rosi Braidotti, 'Is Metal to Flesh like Masculine to Feminine?' Metal and Flesh, 2001.</ref>

Changes accepted.

Unrelated to Star Trek, I go to the article on 'Computer Worm'. [15]

I add:

> *History*
> The actual term 'worm' was first used in John Brunner's 1975 novel, The Shockwave Rider. In that novel, Nichlas Haflinger designs and sets off a data-gathering worm in an act of revenge against the powerful men who run a national electronic information web that induces mass conformity. 'You have the biggest-ever worm loose in the net, and it automatically sabotages any attempt to monitor it... There's never been a worm with that tough a head or that long a tail!'[10]
>
> Shortly after 6 PM on November 2, 1988, Robert Tappan Morris, a Cornell University computer science graduate student, inspired by The Shockwave Rider and the architec-

14. Wikipedia contributors, 'Borg (Star Trek)', http://en.wikipedia.org/wiki/Borg_%28Star_Trek%29, accessed 28 May 2010.
15. Wikipedia contributors, 'Computer Worm', http://en.wikipedia.org/wiki/Computer_worm, accessed 28 May 2010.

ture of its tapeworm program, unleashed the Great Worm. Morris' criminal invention was a self-propagating parasitic Internet invader that interrupted U.S. government, military, university, and commercial online activities for weeks.

'Snori' re-writes the above paragraph into what he calls a more 'encyclopedic' style:
On November 2, 1988, Robert Tappan Morris, a Cornell University computer science graduate student, unleashed what became known as the Morris worm, disrupting perhaps 10% of the computers then on the Internet[11][12] and prompting the formation of the CERT Coordination Center[13] and Phage mailing list. Morris himself became the first person tried and convicted under the 1986 Computer Fraud and Abuse Act[14].

My first paragraph was accepted.

I go to the article 'Data (Star Trek)'. [16]

I add:

Data attempted to reproduce in 'The Offspring' by creating an android daughter, naming her Lal (meaning 'beloved' in Hindi), from his own neural net matrix. She dies at the end of the episode of a neural malfunction or 'general cascade failure', due to an emotional overload in the face of having to be taken away from Data on the order of Starfleet. Data transfers her memories to himself.

In 'The Outrageous Okona' Data tries to learn humor and become a stand-up comedian in the Holodeck. An avatar of 20th century Earth comedian Joe Piscopo warms up the virtual cocktail lounge audience for Data: 'Tonight I have for you the funny man of the stars, the android of antics, that Lt. Commander of mirth. Please give him a nice welcome, ladies and gentlemen, none other than ...'

In 'All Good Things...', the two-hour concluding episode of The Next Generation, Captain Picard jumps around among three different times: three temporal instances of the Enterprise-D, separated by 32 years in time, but positioned at the corners of the same triangular location in space. The 'old man' Picard of 25 years into the future goes with La Forge to seek advice from Professor Data, a luminary physicist who holds the Lucasian Chair at Cambridge University.

I go to the article 'Spock'. [17]

I add:

'"As my parents were of different species', Spock explains, 'my conception occurred only because of the intervention of Vulcan scientists. Much of my gestation was spent outside my mother's womb, in a heated, specially designed environment"'.[3]

16. Wikipedia contributors, 'Data (Star Trek)', http://en.wikipedia.org/wiki/Data_%28star_trek%29, accessed 28 May 2010.
17. Wikipedia contributors, 'Spock', http://en.wikipedia.org/wiki/Spock, accessed 28 May 2010.

And:

Cultural impact
By the late 1960s, NASA personnel en masse wholeheartedly embraced Mr. Spock as one of their own. Leonard Nimoy was invited to be guest of honor at the March 1967 National Space Club dinner, and to take an extensive tour of the Goddard Space Flight Center in Greenbelt, MD. The actor concluded from the warm and intense reception that he received that astronauts like John Glenn and aerospace industry engineers, secretaries, and shareholders alike all regarded Star Trek, and especially the character of Mr. Spock, as a 'dramatization of the future of their space program.' [7]

These changes were accepted.

I add the following nine paragraphs:

In 'This Side of Paradise', Spock is walking with botanist Leila Kalomi, one of the agricultural colonists on Omicron Ceti III. Spock and Kalomi knew each other six years ago on Earth and she was in love with him. When Leila tries to get Spock to open up about his feelings, he says: 'emotions are alien to me, I'm a scientist.' To this she replies: 'someone else might believe that, your shipmates, your Captain, but not me... There was always a place in here [she touches his chest near his heart] where no one could come. There was only the face you allow people to see, only one side you'd allow them to know.' What Kalomi perceives is that Spock may not wish to conclusively reject his human side. After the alien spores which temporarily reside in the flowers of dandelion-like pod plants on the planet exert their influence on him, Spock's repressed human double appears. He confesses the desire, passion, and tender sentiments that he feels towards Leila. They make love.

In '[[The Devil in the Dark (Star Trek: The Original Series)|The Devil in the Dark]]', Spock demonstrate his capabilities of empathy towards alien others in his mind meld encounter with the silicon-based Horta life-form on the mining planet Janus VI. The workers of the mineral production station are menaced by a hideous creature they are not sure they have ever seen. The beast has allegedly killed more than fifty of them. Kirk and Spock are the first to get a clear look at the Horta as it moves with great speed through the underground labyrinth of caverns and tunnels. Spock deduces from various pieces of evidence that the enigmatic entity is intelligent, and that the caves are its natural habitat. Encountering the Horta deep in the tunnel system, Spock closes his eyes. concentrates his mental powers, and establishes a first telepathic contact. He touches the Horta with outstretched hands, fingers separated in pairs as in the Vulcan salute that Leonard Nimoy derived from Jewish Kohanim tradition. He enters the trance, and begins a genuine communion with a true alien other.

In '[[Amok Time (Star Trek: The Original Series)|Amok Time]]', the Enterprise senior officers, on their way to Altair VI, must contend with an increasingly irritable and violent Spock. Spock confides to Kirk the reasons for his aberrant behavior. Once every seven years, the Vulcan individual experiences the primitive drive of Pon farr (along with Plak-

tow or 'blood fever'), impelling him to return home to mate. Disobeying a direct order from Admiral Komack, Kirk risks his career to bring Spock to the appointed consummation of his wedding vows at the temple of the Koon-ut Kal-if-fee. The 'marriage or challenge' ritual of Spock and his betrothed T'Pring is presided over by the stately T'Pau. Spock was the first Vulcan citizen to enlist in Starfleet, and became famous for his achievements. During his long absence, T'Pring fell in love with another Vulcan male named Stonn. On the verge of matrimonial union, she unexpectedly spurns Spock. She chooses the option of Kal-if-fee or challenge. Not wanting to risk Stonn's demise, T'Pring selects Kirk as her 'champion.' Kirk is forced to engage in a one-on-one struggle to the death against his Plak-tow-entranced best friend.

In 'The City on the Edge of Forever', Roddenberry added an insensitive racial joke to Ellison's script. Spock is disguised for anonymity as a Chinese-American, but Kirk must explain his ears to a befuddled NYC constable. 'They're actually easy to explain', begins Kirk. 'Perhaps the unfortunate accident I had as a child?' suggests Spock. 'He caught his head in a mechanical rice picker', retorts Kirk.

In 'A Private Little War', a native of the planet Neural gravely wounds Spock by firing a flintlock rifle. The Science Officer heals injured parts of his body through a Vulcan mind-body technique of self-induced hypnosis and intense mental concentration.

Due to the genetic sequencing he shares with other inhabitants of Vulcan, Mr. Spock can 'withstand higher temperatures, go for longer periods of time without water, and tolerate a higher level of pain' than humans. [7] Spock is more resistant to radiation and needs less food to nourish himself than his non-Vulcan counterparts on board the Enterprise. Physical distress, for Spock, is merely a kind of information input, 'which a trained mind ought to be able to handle', as he declares from his biobed in sick bay in the episode 'Operation -- Annihilate!'.

In 'Operation -- Annihilate!', a flying amoeba-like creature attacks Spock and enters his body. Its tentacles grow internally around his nervous system. Despite experiencing excruciating pain, Spock prepares himself mentally to return to duty. His human half 'is an inconvenience, but it is manageable. The mind rules. There is no pain.'

Spock does not perspire. He exercises extreme restraint in his 'movements, gestures, and facial expressions.' [7] He has much greater physical strength than his Terran colleagues. He has more acute hearing, resulting from evolutionary accomodation to sound wave attenuation in the thin atmosphere of Vulcan. As explained in 'Operation -- Annihilate!', Spock has an extra inner eyelid to protect his vision against strong solar and electromagnetic rays.

Spock is perpetually preoccupied with calculating the odds in any given situation. Leonard Nimoy's chances of 'becoming' Spock at the moment of the actor's birth were exactly one in 789,324,476.76. '[3]

The preceding 9 paragraphs were all deleted by the Wikipedia 'watchdog of the established order' named EEMIV. According to EEMIV, all of my additions are 'gratuitous plot summary.' Yet *South Park*'s reference to Spock's goatee (that someone else added) is retained.

June 18:
I go to the Wikipedia article on Flaubert's 'Bouvard et Pécuchet'. [18]

I add:

In Bouvard et Pécuchet, Gustave Flaubert made fun of 18th and 19th century attempts to catalogue, classify, list, and record all of scientific and historical knowledge. To what extent is Wikipedia an unaware continuation of the 'Enlightenment' projects that Flaubert so brilliantly mocked? In October 1872, he wrote, the novel is 'a kind of encyclopedia made into a farce ... I am planning a thing in which I give vent to my anger...'

18. Wikipedia contributors, 'Bouvard et Pécuchet', http://en.wikipedia.org/wiki/Bouvard_et_Pécuchet, access 18 June 2010.

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A BRECHTIAN MEDIA DESIGN
ANNEMIEKE VAN DER HOEK'S EPICPEDIA

FLORIAN CRAMER

Figure 1: Epicpedia screenshot

Wikipedia's current crisis and stagnation is the latest in a history of disappointed hopes in collaborative media: from hypertext and hyperfiction to Pierre Levy's 'collective intelligence', peer-to-peer networks, Creative Commons, blogs, and wikis. Jeanette Hofmann describes their dynamics as cycles of emancipation and regulation, idealistic beginnings and disappointment. But sometimes, even the utopian premises have never been what they are commonly believed to be. Hopes that Wikipedia will stimulate young people to criticize neoliberal economics – to paraphrase Gérard Wormser – clash with the fact that the Wikipedia project was historically founded on the extreme neoliberal philosophy of Ayn Rand. Jutta Haider's and Olof Sudin's reading of Wikipedia as a 'space, justifiably called a heterotopia', [1] echoes ill-fated 1990s attempts to claim hypertext for postmodern theory [2] and lacks firsthand knowledge of Wikipedia's editorial politics. [3]

1. Jutta Haider and Olof Sudin, 'Beyond the Legacy of the Enlightenment? Online Encyclopedias as Digital Heterotopias', *First Monday*, vol. 15, no. 1, January 2010, http://firstmonday.org/htbin/cgiwrap/bin/ojs/index.php/fm/article/view/2744/2428.
2. Such as in George Landow, *Hypertext*, Baltimore: Johns Hopkins University Press, 1992.
3. Haider's and Sudin's claim that 'hierarchies within Wikipedia are comparatively flat' being the proof in the pudding.

Figure 2: Epicpedia screenshot

Rand's 'objectivism' provides the epistemological foundation of Wikipedia's open-participation authorship under a 'neutral point of view'. More than just a personal philosophical point of departure for the project's founders, Wales and Sanger, the idea of a world that can be generically described works as an implicit social contract binding together Wikipedia's editing community. It closely matches the implicit social contracts of open source development projects of providing generic, standardized technology (such as Unix-compatible operating systems, web, and SQL database servers) freely to the masses while historically contradicting Diderot and d'Alembert's encyclopedia with its partisan politics of knowledge.

In other words, from a critical point of view, Wikipedia was perhaps idealistic but never ideal, whether in its beginnings or today. But who says that a critical point of view is purely a matter of how texts are written? As early as 2008, Rotterdam-based media designer Annemieke van der Hoek saw Wikipedia's issues as web design issues, too. Not only does a 'neutral', generic page design correspond to the 'neutral point of view'. Worst of all, the collaborative authorship of articles is not visible by default. In what could be called objectivism translated into design, the contributions of the single editors are unified into one anonymous, pseudo-univocal whole. This design, with its 1990s wiki legacy, reflects its typical uses of wikis, such as for collaboratively authored technology documentation sites. [4] If the design and content issues of Wikipedia could be condensed to one statement, then perhaps that – in the problematic tradition of cybernetics – it treats information and human knowledge as a technical issue.

4. A good example is the Super 8 wiki, a community self-help page with technical reference information on Super 8 cameras, http://super8wiki.com.

Figure 3: Epicpedia screenshot

Van der Hoek's Epicpedia (www.epicpedia.org) provides an alternative interface design for Wikipedia that literally turns it inside out. Instead of displaying articles as smoothly formatted pages with no visible traces of their different writers, Epicpedia formats each page as a dramatization of its editing history. If one clicks the button 'Show / Hide Reality', Wikipedia's default design is swapped with one that mimics the typography of written theater plays: The various editors of an article are listed as characters and ensemble, each new revision date is a new act or scene, the revisions themselves are dramatic dialogue (see screenshots). While the 'neutral point of view' of the standard Wikipedia seeks to smooth out and hide conflicts, Epicpedia's use of theater play typography as a user interface emphasizes them. On its technical side, van der Hoek's work – completed as a graduation project in the Master Media Design of the Piet Zwart Institute in Rotterdam – does not consist of manual reformatting of Wikipedia articles into dramatic texts, but is a real web application, a computer program that automatically reformats Wikipedia into drama in real time. As a result, the complete current Wikipedia can be read in (or as) Epicpedia, with the drama of each Epicpedia article adapting to the last revisions of Wikipedia.

The simple act of translating one medium into another – i.e., the encyclopedia into the drama of its own making – the mere design of the pages gives readers a critical point of view that the original Wikipedia lacks. It is a powerful counter-example to common beliefs that design is merely about making things pretty, desirable, or accessible. Like architecture, good design really is critical reflection and implementation of ways of seeing and experiencing while imposing both possibilities and constraints. In Epicpedia's case, what would be conventionally understood as anti-accessibility actually gives access to something normally concealed.

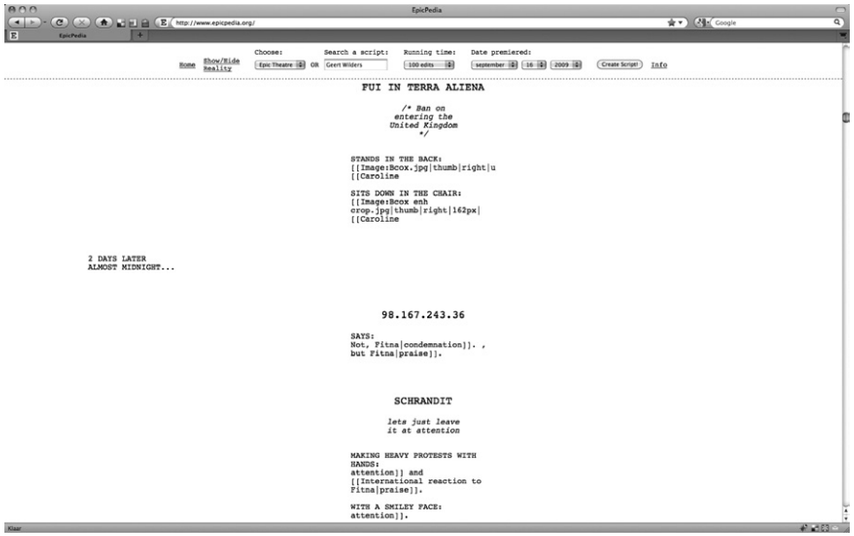

Figure 4: Epicpedia screenshot

As the name Epicpedia indicates, van der Hoek adapted this principle from the early 20th century German political playwright Bertolt Brecht and his 'epic theater'. Brecht wrote and directed theater plays in which 'estrangement' devices constantly disrupted the fourth wall, dramatic illusion: narrators on stage, anti-heroes, actors calling themselves actors, all serving the aim of making the audience reflect and think critically instead of getting immersed and identifying with the drama. Godard and Fassbinder applied Brecht's method to film. And if all of this sounds similar to Situationist tactics from billboard defacement to media pranks, this is no coincidence either. In 1957, Guy Debord wrote in his *Report on the Construction of Situations* that in 'the workers states only the experimentation carried out by Brecht in Berlin, insofar as it puts into question the classic spectacle notion, is close to the constructions that matter for us today'. The Situationist notion of the spectacle clearly corresponds to Brecht's notion of the dramatic illusion, and the disruption of the spectacle through constructed situations to his 'epic' – i.e. anti-dramatic narrative rather than acted – theater. [5] It is an interesting twist of Epipedia that drama and acted-out conflict conversely return as the critique of the deceptively univocal, sober epic narrative of Wikipedia's prose. And while Brecht was still indebted to Friedrich Schiller's late 18th century program of the theater as a means of political education (and revolution), with the switch flipped from emotional mimesis and catharsis to an almost impersonal criticality, the criticality of Epicpedia lies in disclosing how knowledge and learning cannot be detached from personality dramas of the actors making up Wikipedia – that knowledge is never objective, but subject to and product of cultural conflict.

5. Brecht's theater, Godard's and Debord's films of course manifested the very opposite of Hollywood immersive illusionism and psychological method acting.

Figure 6: Epicpedia screenshot

One could also think of a non-Brechtian reading of the critical-point-of-view interface that Epicpedia provides. Making texts visible in their histories of revisions and editorial conflicts has become a core business of critical text philology. In the 1980s, the French *critique génétique* pioneered the publication of literary classics in critical editions that typographically visualized corrections, changes, and variants of texts. Since the 1990s, many philologists of this school have embraced electronic multimedia publication and computer interface design for this purpose. Epicpedia could equally be read as a *critique génétique* of Wikipedia.

Either way, Annemieke van der Hoek's project is a wake-up call to Wikipedia's makers. The blindness of today's arguably most advanced collaborative-hypertext-collective intelligence-open source-creative commons-Web 2.0-community media project to critical issues of internet media design is, give or take objectivism, astonishing. If, in Schiller's and Brecht's tradition, Epicpedia has to offer some morality at the end of the play, then it is perhaps that the current drama of Wikipedia might be less dramatic if the project would consider its own internal dramas as assets, rather than liabilities to conceal.

DIGITAL ANARCHY, SOCIAL MEDIA AND WIKILEAKS
OR, SKYNET DOESN'T LOOK ANYTHING LIKE WE THOUGHT IT DID

PATRICK LICHTY

Atomic Power versus Infostate

The Internet was conceived by the U.S. military (DARPA) as a decentralized network for sharing and redundantly storing information in multiple locations in case of nuclear attack.[1] By design one node could be destroyed, and the network would continue to function despite the loss. To discuss virtual versus conventional power and their constituent streams of capital, I use the terms 'atomic' versus 'info-' power and capital. The use of the term 'atomic' is a double entendre, as the ultimate extension of both the material and conventional loci of power exerted by the traditional nation-state; it is a personal metaphor for material potential and its ultimate extension (nuclear weapons). But the infrastructure of atomic power has also created distributed power through information exchange on the internet, mutating conventional power into concurrent, distributed, heterogeneous power fields that I call the Infostate and that includes the web, email, social media, and all functions of networked communications. Although aspects of conventional power have restructured themselves in terms of the informational milieu, the latter is not necessarily congruent with the former, since the internet spans most physical and material nation-states and resides in no single one. The internet therefore redefines power boundaries along many different vectors other than the atomic and material.

The Net is now an emergent social system as typified in popular science fiction franchises like *The Matrix* and *Terminator,* where technology finds its own agenda. Infopower becomes autonomous from its material, atomic roots. Instead of robots, the infosphere asserts itself. In *The Porcelain Workshop*, Antonio Negri states that one of the three major shifts into the postmodern is the primacy of informatics and cognitive capital central to contemporary postmodernism.[2] The shift from material capital to the cognitive redirects power discourse to data flows and immaterial infocapital that the material sphere then becomes dependent upon. As such, society refocuses on this cogno-capital flow, revealing alternate foundations of power in the new millennium. Negri's conception of cognitive and infocapital as locus of power situates infopower as an asymmetrical challenge to material capital. Its modes of production and circulation are so different (especially cognitive capital's amorphous nature) that it creates social effects more fluidly than material culture.

Despite the internet's decentralized nature, there are physical zones targeted by nation-states' attempts to territorialize, filter, and limit the flow of cognitive capital through

1. J. Abbate, *Inventing the Internet*, Cambridge, MA: MIT Press, 1999.
2. Antonio Negri, *The Porcelain Workshop,* Cambridge: Semiotexte, 2008, p. 20.

'firewalling' or Domain Name Server (DNS) limitations, as occurred in Turkey, China, and especially with Egypt's internet shutdown during the late January 2011 revolution.[3] Also, according to Deleuze[4] and Agamben,[5] power separates the subject from potentiality and thereby mitigates dissent. In the same way, the nation-state tries to exert power by separating the means of support from the figurehead; for instance, WikiLeaks' founder Julian Assange. Cognitive capital is hit-and-hit-and-hit-and/or run culture, swarming like digital bees. This is analogous to the rise of technology and the creation of the virus in *The Matrix* and *The Matrix Reloaded*, as the data overrides and supersedes embodied conventional power. Neo (the prior conventional paradigm) tries to destroy Agent Smith (the informatic), only to viralize him, creating a swarm of Smiths with no apparent 'head', symbolizing hierarchy vs. the dust cloud.

In the same way, efforts to enforce firewalls remain porous and slippery, combated by technologies like proxy servers that reveal the Infostate's transborder nature. The de-territorialization of the Infostate creates an asymmetrical power relation that, due to its amorphous nature, is highly problematic for conventional nation-states to engage, let alone control. Conventional power requires a hierarchical control structure; it needs centralized faces, such as Saddam Hussein or Osama bin Laden, upon which to focus fear or hatred. Infopower resides in digital cloud-culture and is mercuric and morphogenic. When confronted by conventional power's centralized, hierarchical nature, it merely splits, morphs, or replicates, sidestepping command-and control-structures like a dust cloud. This relationship signals a Krokerian Panic Bimodernism[6] that combines impossibilities in which one's ability to relate to the other implodes.

Namely, with the rise of Wikpedia, WikiLeaks, and other social media, we see how First World power has been bitten by its own child. By bleeding information from the hierarchical and material to the distributed, rhizomatic digital networks (i.e., the U.S. diplomatic cable leaks), WikiLeaks, Anonymous, and resistant sites within the distributed Infostate have mounted an asymmetrical insurgency against conventional power. The backlash of conventional symbiotic nation-state and corporate power against WikiLeaks, for instance, awakened the amorphous hacker youth subculture of 'Anonymous', best known for its mass protests against the Church of Scientology.[7] The explosion of infopower and populist sentiment is also seen in Tunisia and Egypt (which have median ages in the mid-20s), where Twitter and

3. Spencer Ackerman, 'Egypt's Internet Shutdown Can't Stop Mass Protests', *Wired*, 28 January 2011, http://www.wired.com/dangerroom/2011/01/egypts-internet-shutdown-cant-stop-mass-protests/.
4. Gilles Deleuze and Felix Guattari, *A Thousand Platueaus: Capitalism and Schizophrenia,* Trans. and Foreword by Brian Massumi, Minneapolis: University of Minnesota Press, 1987.
5. Giorgio Agamben, *Nudities*, Translated by David Kishik and Stefan Pedatella, Stanford University Press, 2010, p 43.
6. Arthur Kroker, *The Possessed Individual: Technology and New French Theory*, New York City: Palgrave Macmillan, 1991, p 12 and 24.
7. BBC Staff, 'Masked demonstrators gathered outside London's Church of Scientology in protest against the organisation', *BBC Online*, 11 February 2008, http://news.bbc.co.uk/2/hi/uk_news/england/london/7237862.stm.

Facebook, paired with cell phones, caused an amorphous infostructure for dissent to flourish in the transnational milieu of the net. The children of the internet and the military-industrial complex (conventional power), as well as those of the digitally savvy Third World, turn upon their 'parents' in an Oedipal twist, eliciting the expected reflexive response. I will next discuss these emerging subcultures in more detail, starting with Wikipedia and its wiki structure, as a form of community organizing characteristic of sites' Infostate resistance at work today.

Wikipedia and Wiki-culture

The rise of Wikipedia challenges notions of legitimacy, cultural production, and institutional power. Community-driven online media like wikis create frameworks for anarchic models of media production and grassroots community, social protocols, and delivery methods based on conceptual frames of the site's mission. The scope of the Burning Man-like potential for cultural location of wiki discourse ranges widely from Wikipedia to Encyclopedia Dramatica. As wiki-based media expands, what can we learn from the relocation of power structures from the institutional to the communal?

Looked at from a radical analysis, the wiki might be considered a socially emergent site for online, self-organizing, anarchic, communal organization, based only on the mission of the site and the goals of its members. Wiki communities set their bylaws, creating what Guattari might call 'molecular', or localized hegemonies. But we see that user-generated sites, in themselves media ecologies, are only anarchic if used in terms of their initialized forms; that is, flat, rhizomatic, and amorphous in organization. The social hierarchy becomes internally and externally unequal as it institutionalizes. These entanglements could include the incorporation of non-profit foundations, funded patronage, or merely social legitimatization on the internet or even memetic and viral recognition.

The shape of community-based media sites takes time to coalesce into formal structures as groups establish their own hegemonic codes of conduct. User-generated collective communities and the normalization of their content can be seen in engineering terms similar to that of a feedback and cybernetic system that oscillates wildly in the beginning and comes to a relative state of equilibrium as the social structure normalizes. Also, as sites become better established, the protocological norms of the community, implicit or explicit, are established, giving rise to enforcers of those norms, the set of superusers (admins). The site, the community, and the content oscillates into being and iterates into stability, as can be seen on the CPOV list,[8] which claims that stabilization of a Wikipedia entry possesses an iterative process of about 20 updates and edits until it reaches a stable form.

Once a user-generated community has established a set of dominant social contracts, a method of content distillation, and focus around its subject or mission, the social media site has gone as far from the generalized, amorphous wiki model as the fetus from the initial zygote. This differentiation reminds one of what Felix Guattari calls 'Molecular Discourses', in which a specific set of rules, taxonomies, or other rhetorical apparatuses are created

8. Please see CPOV listserve, http://listcultures.org/mailman/listinfo/cpov_listcultures.org.

for a certain user-generated site's content, mission, mode of production, or set of internal governance. This is the core of the assertion that Wikipedia is merely one situation located within an emerging cultural milieu of numbers of structures of socially-emergent media, examples of which we will look at next in the context of sociopolitical events and the rise of the Infostate.

The Fall of Tunisia and the Rise of EgyptBook

Infopower creates a lens for existing unrest. On Friday, 14 January 2011, President Zine al-Abidine Ben Ali left Tunisia after more than two decades in office due to massive uprisings following the self-immolation of college student Mohamed Al Bouazzizi, whose vending cart was seized.[9] The Tunisian government was unstable from rising unemployment and lack of opportunity, and social networks such as Facebook served as conduits for dissent. Tunisians with access to the internet saw the (at least perceived) disparity in opportunity between their country and the world, expressed in informal social media for some period of time. In addition, information from WikiLeaks stated that the United States called Tunisia 'sclerotic', and described Ben Ali's family's role in nearly all parts of the economy, causing further dissent through online social media.[10]

These events represents three points of destabilization, one physical, two informatic: first, Al Bouazzizi's immolation became the spark setting off the powder keg of unrest and aggravation; next, this act was exacerbated by leaked cables; and finally, infopower exerted itself in the consolidation of communication by the networks, creating channels and batteries for cognitive power. Therefore, though not the singular cause for the fall of a nation-state, infopower produced the impulse and means of organization of a delicate political situation pushed beyond a 'Tipping Point',[11] as well as channels for a concentration of cognitive capital necessary to organize revolution. Atomic power predictably reacted to the informatic when Ben Ali instructed the police (or 'militias' according to the Western press) to turn against the revolutionaries and general populace after his escape.

Following Tunisia's fall, in late January 2011, unrest and anarchy broke out in Egypt, with masses calling for the ouster of President Mubarak. Pundits on a January 30 CNN broadcast stated that the Tunisian revolution 'awakened the Arabic imagination' to the possibility of revolution. Repeated cell phone use of Twitter and Facebook could also be considered an epistemic arc of the political effects began by WikiLeaks and social media's channeling of dissenting cognitive capital.

9. David Kirkpatrick, 'Tunisia Leader Flees and Prime Minister Claims Power', *New York Times Online,* 14 January 2011, http://www.nytimes.com/2011/01/15/world/africa/15tunis.html?_r=1.
10. Maha Azzam, 'How WikiLeaks helped fuel Tunisian revolution', *CNN Online,* January 2011, http://articles.cnn.com/2011-01-18/opinion/tunisia.wikileaks_1_tunisians-wikileaks-regime?_s=PM:OPINION.
11. Malcolm Gladwell, *The Tipping Point: How Little Things Can Make A Big Difference*, New York City: Back Bay Books, 2002.

At the time of this writing the status of Egypt is still in question, but the rise of the Infostate and infopower's supersession upon the material are at least evident in how the mass media operates between the conventional, corporate state and the infosphere. It's also important that Facebook does not support infocapital's use of its streams unless it suits its corporate agenda, demonstrated by its public stance against WikiLeaks. The infosphere is amorphous, 'lumpy', discontiguous and heterotopic. It is asymmetrical structurally and in its power relations to the material state, causing severe anxiety to conventional power.

The Emperor's New Bits, or Hans Christian Anonymous

In the classic Hans Christian Andersen story, 'The Emperor's New Clothes', twin weavers swindle an emperor who cares for nothing but his wardrobe by offering him clothing invisible to anyone too stupid to see the couture. Hoodwinked by the weavers, the emperor parades the new line for the populace. The masses are cowed into an Orwellian acceptance of the ruse by the emperor's power, save for one boy who exposes the Emperor's nudity. [12] Perhaps this is the metaphor for Critical Art Ensemble's description of youth as cyber-interventionists in the context of an era in which *Electronic Civil Disobedience* (ECD) addressed malaise in parts of the Left that had 'bunkered' itself. [13] While there were radical changes in discourse between the 1990s and the 2000s, ECD's text aptly foreshadows many of the events of 2010-2011. The 20-something demographic of which *ECD* speaks includes Anonymous, embodying the youth of the Andersen fable and representing the interventionists of the online public sphere.

Anonymous's ad hoc group of hacktivists largely skews to a younger demographic. This 'group' is anarchic, emerging from sites such as 4chan.org to satirically speak its truth to power. In 2008, for instance, they targeted the Church of Scientology with a series of online videos calling out the church's lack of transparency. Flash mobs wearing Guy Fawkes' masks physically 'troll' or aggravate church locations, playing boom boxes loaded with recordings of Will Smith ('Bel-Airing') and Rick Astley ('Rick-Rolling'). These gestures are classic online trolling postures, and Anonymous' actions against the church were intended as a momentary physical Distributed Denial of Service (DDoS) attack or simply an old fashioned sit-in. Basically, Anonymous arrived from nowhere as a group of nobodies, then returned to the ether from which they came. Anonymous is a cloud of asymmetrical Andersenian 'children' speaking truth to the emperor's power.

Anonymous is not an organization but an anarchic ad hoc group that emerges through the underside of the internet. It represents infopower: emergent, distributed, and utterly flat in its (dis)organization, with its conduits of power surging through any net connection. Anonymous is like dust; eliminate part of it and it replicates as long as there are net connections. Monitor them and they encrypt. Cut a connection, they reroute. Anonymous is a human computer virus. Anonymous is deemed 'troll' culture, or youth motivated to aggravate any power as a

12. Hans Christian Anderson, *The Emperor's New Clothes*, Hans Christian Andersen Center, http://www.andersen.sdu.dk/vaerk/hersholt/TheEmperorsNewClothes_e.html.
13. Critical Art Ensemble, *Electronic Civil Disobedience,* New York, New York: Autonomedia, 2009, http://www.critical-art.net/books/ecd/.

form of entertainment or loose anarchism. Anonymous is largely the youth hacker demographic described by Critical Art Ensemble but is also anyone or anything that chooses to take up the cause.

In *Electronic Civil Disobedience*, Critical Art Ensemble proposes that in the age of informatic power, physical (atomic) resistance speaks to dead capital, as authority elides or corrals the physical protester. [14] Disruption of capital resides in the virtual. The real interventionists are the 20-something hackers who punch through firewalls and reroute flows of information, creating redirection, disruption, and detournement of infocapital at will. For example, Anonymous has used distributed, asymmetrical cyberwarfare, such as denial of service attacks to overload a website's server computer through mass visitation and to disrupt online bank sites, commerce, and others. During this time, DNSs from controlling service providers like Comcast (which has proposed measures against net neutrality) became erratic, resulting in highly circumspect intermittent Web access.

The disruption of infocapital and infopower is predictably met with harsh indictments from conventional power. The case of Ricardo Dominguez and the Electronic Disturbance Theatre's virtual sit-in against the University of California was a relatively benign case of data disruption as political act. But the asymmetrical response by the university system's attempt to remove Dominguez' tenure reifies the tension between atomic and informatic powers. [15] The disruption of infocapital took place on a larger scale when Chinese governmental hackers compromised Google, as revealed by WikiLeaks, [16] and with the near hack of an Iranian reactor by computer viruses. [17] In the Netherlands, members from an Anonymous rally were beaten in the streets, and two 16 and 19 year-olds charged for the Denial of Service attacks against government and commercial sites seeking to stop WikiLeaks. [18] Also, in the U.K., five men between ages 15 and 26 were subject to a 7A.M. raid for temporarily crippling MasterCard, Visa and PayPal websites, also seeking to disable WikiLeaks. [19] These illustrate Negri's idea that postmodern power and capital have shifted to the informatics and cognitive fields and signal a primary shift in the balance of power in the First World, if not globally, from the nation-state to the Infostate.

14. Ibid.
15. Jerry To, 'Admins Continue to Investigate Dominguez', *UCSD Guardian*, 13 May 2010, http://www.ucsdguardian.org/tag/ricardo-dominguez/.
16. James Glanz, John Markoff, 'Vast Hacking by a China Fearful of the Web', *New York Times Online*, 4 December 2010, http://www.nytimes.com/2010/12/05/world/asia/05wikileaks-china.html.
17. Robert McMillan, 'Stuxnet virus may be aimed at Iran nuclear reactor', *Computerworlduk.com*, 10 September 2010, http://www.computerworlduk.com/news/security/3240458/stuxnet-virus-may-be-aimed-at-iran-nuclear-reactor/.
18. Ryan Single, 'Dutch Arrest Teen for Pro-WikiLeaks Attack on Visa and MasterCard Websites', *Wired.com*, 9 December 2010, http://www.wired.com/threatlevel/2010/12/wikileaks_anonymous_arrests/, Web. n.r. Jan 3, 2010.
19. Mark Halliday, 'Police arrest five over Anonymous WikiLeaks attacks', *Guardian.co.uk*, 28 January 2011, http://www.guardian.co.uk/technology/2011/jan/27/anonymous-hacking.

Wikileaks

For those who have been unaware of late 2010's geopolitical news, WikiLeaks is an online Wikipedia-like database that 'whistle-blows' against questionable governmental and corporate activity by releasing controlled and classified documents. [20] As of December 2010, they have released copious cables (transmitted internal memos), largely related to U.S. foreign policy and international intelligence. This sudden transparency to power has the First World, especially the U.S. State Department, in a panic. Why? WikiLeaks shows an unflattering side of the U.S. committing any number of gaffes, such as calling Russia a 'mafia state', [21] and painting uncomplimentary portraits of Middle Eastern leaders. [22] The range of other undisclosed information spans from the revelation of weapons technology transfers from North Korea to Iran [23] to U.S. drug companies targeting African politicians. [24] The WikiLeaks disclosures, and social media in general for that matter, have sent the First World into diplomatic chaos, with geopolitical politics reconfiguring itself like a planet-sized Rubik's Cube.

The First World then reacts to dissent by expediting material and physical diplomacy that would normally take months by arresting Assange, possibly to extradite him to the U.S., his locus of challenge. [25] Although the 'head' (the object of conventional power's leverage) is in custody, the 'body' of WikiLeaks and its 'computational cloud of dissent' stated on December 7 (incidentally, the day of the Japanese attack on Pearl Harbor) that it will continue to release information. [26] Despite attempts to anthropomorphize a centralized identity, or place a single 'face' on challenges to hegemony (as in the Queens of *Aliens* and The Borg in *Star Trek*), asymmetry is faceless and morphogenic dissent. It is like trying to hold mercury, because decentralized dissent can only be addressed through decentralized means, not structures of conventional command and control.

WikiLeaks therefore has created a situation of concurrent, distinct, and palpable effects upon the domain of conventional power, with a First World backlash on the 'awakening of imagination' it offers. This reifies Negri's assertion that capital in the postmodern age has shifted to information and the cognitive and that the real theater of engagement is the infosphere.

20. Wikileaks, http://213.251.145.96/, accessed 28 May 2011.
21. BBC Staff, 'Wikileaks: Russia branded 'mafia state' in cables', *BBC Online*, 10 December 2010, http://www.bbc.co.uk/news/world-us-canada-11893886.
22. Cahal Milmo, Jerome Taylor, David Usborne, 'Deceits, plots, insults: America laid bare', *The Independent Online*, http://www.independent.co.uk/news/world/politics/deceits-plots-insults-america-laid-bare-2146208.html.
23. Orkube.com, 'China pressed over Iran and North Korea's nuclear trade', http://www.orkube.com/blogs/viewstory/2100.
24. BBC Staff, 'WikiLeaks: Pfizer denies dirty tricks claims in Nigeria', BBC Online, 10 December 2010, http://www.bbc.co.uk/news/world-africa-11971805, Web, n.r. December 17 2010.
25. Karla Adam, 'Lawyers for WikiLeaks' Assange outline defense for extradition hearing in London', *Washington Post Online*, 11 January 2011, http://www.washingtonpost.com/wp-dyn/content/article/2011/01/11/AR2011011105433.html.
26. Robert Booth, 'WikiLeaks to keep releasing cables despite Assange arrest', *Guardian.co.uk Online*, 7 December 2010 http://www.guardian.co.uk/media/2010/dec/07/wikileaks-cables-julian-assange-arrest.

WikiLeaks has realized infoinsurgency as the first world and digital society become informatic. The most powerful form of anarchy today is in the disruption and release of data withheld by the nation-state. Information and the people who circulate it still want to be free.

Conclusion

In light of this power redistribution, how will conventional atomic power reassert hegemony? As mentioned at the beginning, it will contain the rise of informatic power through its means of distribution, such as national firewalling, trunk-line disconnection, or limited internet, crippling the flow of digitized material capital as well. In Egypt, the internet was disabled, severely limiting information flow and the social and material functions dependent on networks (although as of 29 January 2011, smart phone networks were online). [27]

But cutting the digital backbone is problematic at best, since conventional and informatic powers are in symbiotic relation. The latter is nimbler, always a step ahead of the former, and to attack a symbiote will cripple its partner as well. The logical result is the elimination of net neutrality (the free and open flow of data across the internet) or severing typologies and information flows across the networks. But the symbiotic effect means that conventional power and capital is also hobbled, as the physical is dependent on the same flows of information. It cannot engage in this means of retaliation, since it would be the digital suicide of the First World nation-state.

In *The Coming Insurrection*, the French anarchist group, The Invisible Committee, posits a communo-anarchic insurgency to overthrow the conventional nation-state. [28] In its place is a cybernetic proto-industrial model of networked communes with high tech microproduction, established during and after a mass armed insurrection. But if the Committee suggests a substructural relation through anarchic enclaves and networks, that tactical position is entirely sustainable. The Insurrection will be symbiotic, tactically acting upon conventional capital in a cybernetic loop of transparency of power. The revolutionaries will have an android in one hand and a Molotov cocktail in the other, riding horseback across the digital grid rather than the savannah. They will be equally ad hoc in organization, technology, and distribution, using whatever means necessary to tap free wi-fi from Starbucks on courier bikes. Perhaps this is overly romantic, but with do-it-yourself culture, digital equipment, and open culture, the symbiotic citizen of the Infostate can surf across the regions of the atomic world with a swarm of siblings.

Hence, the brilliance of WikiLeaks and social media – they use the infrastructure relied upon by conventional power as site of anarchic resistance and prove informatic power's potential to render conventional power impotent. While important to specific situations, Assange is

27. Nicholas Jackson, 'Despite Severed Connections, Egyptians Get Back Online', *Atlantic Monthly Online*, 29 January 2011, http://www.theatlantic.com/technology/archive/2011/01/despite-severed-connections-egyptians-get-back-online/70479/.
28. Invisible Committee, *The Coming Insurrection,* Cambridge, MA: Semiotext(e) / Intervention, 2009.

not crucial to these events' systemic effect; they are 'symptoms' of the emergent system of power. In this case, the smart phone is mightier than the sword. As nuclear détente created an 'aesthetics of uselessness' in its stockpiles' ridiculously high potential to destroy the Earth, the Infostate can merely shut down the control systems of the bunker to reduce the atomic to aesthetic nullity. We see a nation of nuclear gophers, lifeless in their burrows. Power reconfigures in light of informational versus conventional power, which is why WikiLeaks and social media as political lever is significant and why the geopolitical panic-sites they create are so powerful.

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WHEN KNOWLEDGES MEET
WIKIPEDIA AND OTHER STORIES FROM THE CONTACT ZONE

MAJA VAN DER VELDEN

Beginnings

In 2000, the Local Content Working Group of the Digital Opportunity Task Force of the G8 met in Genoa and agreed to start working on an effort in support of local content creation. The working group was chaired by OneWorld International, which proposed the development of a file sharing service for the production and dissemination of local knowledge for local development. A document describing the software architecture for the new initiative, the Open Knowledge Network (OKN), mentions: 'The ambition for OKN is to be the "Napster for development" [1] achieving a scale of thousands of hubs producing locally relevant material for millions of telecenters, serving tens of millions of end users'. [2] In the same period another ambitious initiative was launched: Wikipedia, which aimed to provide cheap encyclopaedias to schools across the world.[3] In an interview in 2004, Wikipedia founder Jimmy Wales declared: 'Imagine a world in which every single person on the planet is given free access to the sum of all human knowledge. That's what we're doing'. [4] Wikipedia became one of the most popular websites in the world, while the Open Knowledge Network failed in its endeavour. What they had in common, however, was the idea that human knowledge can be managed in a database shared by everyone.

In this article I will explore the management of knowledge in five different stories about ordering knowledge. As an introduction I will present three stories that explore the idea that ordering affects our understanding of what is knowledge, who can be a knower, what can be known, and who will benefit from knowledge. I am particularly interested in the materialization of knowledge and knowers in the systems and practices that order knowledge. I will also further an understanding of knowledge as the result of a direct material engagement with the world, [5] not as the result of a reflection on the world, which implies a separation between knower and knowledge. [6] We know with and through our own bodies, other bodies (human and nonhuman), and things, such as instruments, computers, classification systems, standards, and protocols.

1. In 1999, Napster, a music file sharing service, was launched. It expanded rapidly and became a global network connecting around 60 million users until it was shut down in 2001.
2. John West, *Open Knowledge Network: Architectural Framework 0.2*, 2002, p. 14.
3. Jimmy Wales, 'Hi…', posting to nupedia-l mailing list, 11 March 2000, http://web.archive.org/web/20010506015648/http:// www.nupedia.com/pipermail/nupedia-l/2000-March/000009.html
4. Jimmy Wales, 'Wikipedia Founder Jimmy Wales Responds, Slashdot, 28 July 2004, http://interviews.slashdot.org/article.pl?sid=04/07/28/1351230.
5. Karen Barad, *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning*, Durham: Duke University Press, 2007.
6. Ibid. Donna Haraway, 'Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective', *Feminist Studies* 14. 3 (1988).

Open knowledge projects such as the Open Knowledge Network and Wikipedia foreground notions of freedom and of multiple possibilities. The *regulatory agency* of the material, how the database interacts with knowledge and knowers and contributes to particular possibilities and constraints, often becomes invisible or is ignored. I will explore the agentive role of technology design in stories about classification work in Wikipedia and in TAMI, an Aboriginal database. By reading these two stories diffractively, not comparing them but reading them through each other, we might find differences that matter, [7] and other possibilities for ordering knowledge may become visible.

Ordering Knowledge

In this section I will explore the ordering of knowledge in three different stories. Each one of them brings particular insights to the foreground, as they address the effects of this ordering in different times and places. The first story is set in the early 18th century and is about how ordering knowledge changes our ideas of what knowledge is. The second story is set in 2010, but its history extends thousands of years. It is based on my visit to Vancouver, a city built on the unceded land of the Musqueam people. [8] The story is about finding oneself, as an Indigenous person, in an ordered collection of knowledge. The third story is based on my research into the Open Knowledge Network, which brought me to India in 2007. I followed knowledge as it was translated from a healer's embodied practice into different formats for ordering knowledge.

When Less is Better

> This is another way of saying that the archive, as printing, writing, prosthesis, or hypomnesic technique in general is not only the place for stocking and on serving an archivable content *of the past* which would exist in any case, such as, without the archive, one still believes it was or will have been. No, the technical structure of the *archiving* archive also determines the structure of the *archivable* content even in its very coming into existence and in its relationship to the future. The archivization produces as much as it records the event. [9]

The first story is based on 'Description by Omission', an article written by Lorraine Daston. [10] By describing a particular period in the history of science, the author provides an interesting introduction to the idea that the ordering of knowledge produces a particular understanding of knowledge. Daston starts and ends her article with the work of Swedish

7. Barad; Donna Haraway, *Modest_Witness@Second_Millenium.FemaleMan©_Meets_Oncomouse™*, New York: Routledge, 1997.
8. Musqueam Band, http://www.musqueam.bc.ca/Default.htm.http://www.musqueam.bc.ca. The territory is contested, as there are multiple First Nations claims on the land on which Vancouver is built. See http://vancouver.ca/commsvcs/socialplanning/initiatives/aboriginal/community.htm
9. Jacques Derrida and Eric Prenowitz, 'Archive Fever: A Freudian Impression', *Diacritics* 25. 2 (Summer, 1995).
10. Lorraine Daston, 'Description by Omission', in John Bender and Michael Marrinan, *Regimes of Description: in the Archive of the Eighteenth Century,* Stanford, CA: Stanford University Press, 2005.

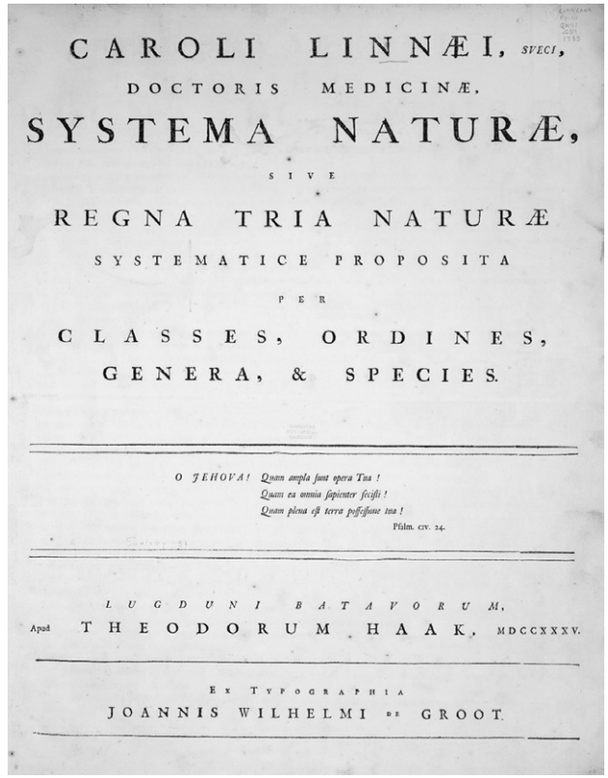
botanist Linnaeus (1701-1778). Linnaeus accused his contemporaries of extravagant descriptions. He argued that he needed only four categories (number, shape, position, and proportion) to identify a plant and that the description of each category per plant needed only two words. Daston argues that this is exemplary of an important shift that took place between 1660 and 1730: while people once understood nature as irregular, as constantly changing, they began to perceive it as something to capture in a limited set of regularities.

Linnaeus objected to British scientist Robert Boyle's 'militant empiricism' with its focus 'upon singularities as the most revealing of the nature of things'. [11] Boyle and his colleagues looked at the anomalies of light in order to better understand it. They investigated all kinds of luminescent materials and described the differences, rather than the similarities between these materials, in order to get closer to the nature and characteristics of light. In Daston's words: 'The facts of strange phenomena simultaneously dissolved homogeneities and united heterogeneities'. [12] The customary link between light and heat was dissolved after Boyle realized that luminescent substances ranging from rotten meat, stones, and stockings all held in common that they were cold to the touch when they shone.

Daston describes how by 1730 this situation had drastically changed. In the 1720s, French chemist Charles Dufay had published some articles on luminescent materials, in particular phosphor. Dufay was interested in 'saving phenomena in scientific memory' and therefore in the replicability of facts. Rather than depending on the chance discoveries of Boyle and his contemporaries, Dufay looked at the regularities found in the different substances. In Dufay's 'inductive empiricism', regularities became the phenomena that would allow one to get closer to the nature of things such as light. Daston called this 'the new factuality of uniformity': 'by systematically obscuring the details of the phenomena new understandings of light became possible'. [13]

By 1740 the uniformity of nature was firmly established. Singularities and diversity were still around, but were no longer seen as material for the production of knowledge. [14] Rather, descriptions of nature smoothed out differences. The Rosa *sylvestris alba cum rubore, folio glabro* (pinkish white woodland rose with smooth leaves) or the wild Briar Rose became Rosa canina or Dog Rose in Linnaeus' binomial system (genus-species) for naming species. Objects from far away places were arranged together to 'maximize resemblance rather than diversity', and species rather than individuals became the preferred type of illustration in natural history. [15]

11. Ibid, p. 21.
12. Ibid, p. 15.
13. Ibid, p. 22.
14. Ibid.
15. Daston.


CAROLI LINNÆI, SVECI,
DOCTORIS MEDICINÆ,
SYSTEMA NATURÆ,
SIVE
REGNA TRIA NATURÆ
SYSTEMATICE PROPOSITA
PER
CLASSES, ORDINES,
GENERA, & SPECIES.

O JEHOVA! Quam ampla sunt opera Tua!
Quam ea omnia sapienter fecisti!
Quam plena est terra possessione tua!
Psalm. CIV. 24.

LUGDUNI BATAVORUM,
Apud THEODORUM HAAK, MDCCXXXV.

EX TYPOGRAPHIA
JOANNIS WILHELMI DE GROOT.

Figure 1. Cover page of Linnaeus's first edition (1735) of Systema Naturae. [16, 17]

Finding Oneself

> When I was small, I was called "Little Bird". When I first went to war and returned to camp, the name of "Long Horn" was given me by an old man of the camp. Then the traders gave me the name Tall-White-Man, and now, since I have become old, they (the Indians) call me Black Pipe. This name was given me from a pipe I used to carry when I went to war. I used to blacken the stem and bowl just as I did my face after these trips, and I was especially careful to do so when I had been successful. [18]

16. The first issue of Linnaeus' *Systema Naturae* was published in 1735 and organized the names for plants and animals in 11 pages. The text was printed on large folio pages measuring roughly 50 by 40 cm.
17. Biodiversity Heritage Library, http://www.biodiversitylibrary.org/item/15373.
18. Black Pipe's story demonstrates the principles of North American Indian naming. See Frank Exner, Little Bear, 'North American Indian Personal Names in National Bibliographies', in K.R. Robert (ed.), *Radical Cataloging*, London: McFarland, 2008, p.150.

The second story is based on my visit to the Xwi7xwa Library,[19] which is part of the University of British Columbia (UBC) in Vancouver, Canada. The collections of the library focus mainly on First Nations in British Columbia, with additional materials on Canadian First Nations and national and international First Nations and Indigenous peoples. The Xwi7xwa Library collects materials written from First Nations perspectives, such as materials produced by First Nations, First Nations organizations, tribal councils, schools, publishers, researchers, writers, and scholars.[20]

The Xwi7xwa Library staff provides its visitors support for finding similar resources in the databases provided by the University of British Columbia. They recommend the following terms to locate relevant resources in these databases:[21]

Database:	**Main search term:**
Academic Search Complete	Indians of North America
America: History and Life	Indians
Anthropology Plus	Indians of North America
Bibliography of Native North Americans	Indians of North America, Indigenous Peoples
Canadian Periodical Index	Canadian Native Peoples Use "Native North Americans" to find articles with an American focus
CBCA Education	Native North Americans, Native Peoples is also used for Canadian Aboriginal people
ERIC	Canada Natives, Use American Indians for articles with an American focus
MLA	Native Americans

The librarians suggest the following set of terms when doing a keyword search in the UBC databases:[22]

– first nation
– first nations
– aborigin* (for aboriginals and aboriginality and aborigines),
– indian, indigenous, (or indigen* for indigeneity),
– native, native american, american native, trib* (for tribal or tribes)
– Names of specific nations: Haida, Cree*, Nisga'a, Maori, and so forth.
– Metis and Inuit (Eskimo for some Alaskan materials). Articles about Métis and Inuit aren't usually included in the previously mentioned terms.

19. Xwi7xwa Library is pronounced 'whei-wah', http://www.library.ubc.ca/xwi7xwa/. Xwi7xwa.
20. Xwi7xwa Library, http://www.library.ubc.ca/xwi7xwa/library.htm.
21. Xwi7xwa Library, http://www.library.ubc.ca/xwi7xwa/Truncation.pdf.
22. Ibid.

But even with all this help, one may not be able to find oneself in the library system. For example, there is no authorized subject heading for Musqueam, the name of a Canadian First Nation people, in the Library of Congress, the library classification system on which the UBC library is based.[23] The importance of this becomes clear when one realizes that the University of British Columbia is built on the unceded land of the Musqueam people.[24] As Ann Doyle, head librarian of the Xwi7xwa Library, remarks:

> Musqueam elders are an integral part of the university; they provide support for the students and staff services, and frequently open campus events and ceremonies. Musqueam leaders serve on administrative bodies, such as the university senate. When the Musqueam people come to the library and ask, 'Where are the library materials on Musqueam? Where are all the materials written by the anthropologist, and the linguists, and the historians on our people'? I have to reply: 'There is no word for Musqueam in the library world, there is no section on the university library shelves for Musqueam.'[25]

Lost in Translation

> We'd go out in the woods to get wood for the fire or to gather plants for medicine, because the old ladies always used that. We always went out as a group of women, my mother, that old lady, and me. They showed me those places where to go. They didn't really tell me, direct me, and tell me straight out, but they always made sure that I was right there with them when they did that. They'd point out things to me. So it was always about being around the elder women. When people were sick, people would come to our house and ask my mother for that medicine, and then we'd go out in the woods and get it. She knew about different things, like heart, stomach, and lung medicines.[26]

The third and last story is based on my visits to India in 2007. I followed knowledge while it was travelling from people to things in the Open Knowledge Network (OKN). During this research I met with community healers who lived and worked in villages in Tamil Nadu in Southern India. The healers participated in this knowledge-sharing project, because they were told that this project would help preserve their knowledge for future generations of healers.

The healers told me about the treatments they apply for different kinds of bites, wounds, pains, rashes, colds, and diseases. Some healers treated people as well as animals. They explained about seeds and roots and leaves and trees. They also talked about their role in the

23. Library of Congress, Search, http://id.loc.gov/search/?q=musqueam&cs=cs%3Alcsh&Search_submit=Go. Kelly Webster and Ann Doyle, 'Don't Class Me in Antiquities! Giving Voice to Native American', in K.R. Robert (ed.), *Radical Cataloging,* London: McFarland, 2008.
24. The Musqueam people now live on a small portion of their territorial land, known as the Musqueam Indian Reserve. See http://www.musqueam.bc.ca/Home.html.
25. Webster and Doyle, p. 192.
26. As told by Thunder Woman, who is Ojibwa, born on a Northern Minnesota reservation. Quoted in Roxanne Struthers, 'The Artistry and Ability of Traditional Women Healers', *Health Care for Women International*, 24.4 (2003): 347.

Figure 2. Sign by American artist and scholar Edgar Heap of Birds at UBC Campus. [27]

community and their relationship with Western, or what they called *English*, medicines and treatments. They understood their healing activities as a kind of community service. Successful treatments could be rewarded with food or cloths or other items they needed. Sometimes, while explaining a certain treatment, I could see how a healer already rubbed a leaf before it was picked or chose a particular leaf among many others.

During these conversations, a community volunteer of the local Village Information Center accompanied me. I noticed that every time a healer talked about treatments, the volunteer moved her finger across a written text in a large notebook. I asked what she was doing. She answered, 'I am checking that what she is saying now is the same as what she told me before'. I asked the volunteer what happened with the treatments she wrote down in the notebook. She told me that she would type her notes into the computer in the Village Information Centre and send these files to a *knowledge worker* based at the regional research center.

And so the journey started – from the notebook to the computer in the Village Information Center to a small research center in the same region. I visited the research center and asked the knowledge worker about the files sent from the Village Information Center. The knowledge worker showed me a file in which the names of trees and plants mentioned in the files were collected. The local names of plants and trees were ordered alphabetically, and their medicinal characteristics and applications were added. The knowledge worker's task was to find the

27. Photo by Holly Tomren, http://www.flickr.com/photos/htomren/3666247626/.

Figure 3. The notebook (photo by author).

global name for each of these plants and trees, the Latin name used in the International Code of the Botanical Nomenclature (ICBN). The knowledge worker also ordered the treatments by disease, translated them in English, and printed them in a report that was available to foreign visitors of the research center. Some of the treatments were also reproduced in their original language in a local community newsletter.

The small research center was connected with the main research center in a big city. During a presentation on the work of the center in the city, which includes the development of databases and managing knowledge, I asked the senior researchers where I could find the knowledge of the traditional healers I had met. The answer was clear: 'Such knowledge can not enter our databases before its validity has been established in a proper laboratory'.

The ordering of knowledge in a notebook, in a file with Latin names, and in lab reports with analyses results in a particular kind of knowledge. Crucial information, about when, where, and how to pick the leaves, seeds, roots, and bark, how to use them, and how, when, and where to apply the treatments have disappeared. The different orderings produce new knowledge, no doubt about that, but this new knowledge does not seem very meaningful for future healers.

Epilogue

The three stories about ordering knowledge give us some insight into what happens when knowledge is systematized and organized. The first story demonstrates how the ordering of things – do we order them on the basis of their similarities or their differences? – affects not only what is considered to play a role in the production of knowledge, but also what we can know about things after we have decided that they do play a role. The second story is about how the ordering of knowledge results in further marginalization. The example of the Musqueam people is especially illustrative of how the marginalization of particular forms of knowledge and its knowers is never an isolated event. There is a connection between

the Musqueam people's territorial marginalization and their marginalization in the Library of Congress classification system and, consequently, the classification system of the University of British Columbia. The last story about the translation of knowledge foregrounds, among other things, the different materializations of knowledge. Knowledge was translated from the embodied knowledge of a healer, embedded in a local community and culture, to codified and digitalized knowledge, printed in computer files, community newsletters, reports, and maybe also in databases.

The ordering of knowledge produces new knowledge, as we saw in each of the three stories, and makes some knowledge more accessible to a wider or a particular audience. The three stories show us, however, that we need to qualify such statements. Who benefits from this new knowledge? Who and what is marginalized by the new organization of knowledge? I will take these questions to the next section, where they will guide investigations in two database systems that organize knowledge: Wikipedia and TAMI.

The Matter of Knowledge (and Why It Matters)

In *The Language of New Media*, Lev Manovich [28] discusses the database as a new cultural form: 'the database represents the world as a list of items, and it refuses to order this list'. [29] Manovich sees an important difference between the database and other media for storing content, namely the separation between content and interface: in the database we can make different interfaces to the same content.

A *pure database* is 'a set of elements not ordered in any way'. [30] This is however never the case when we access a database. There is always already some ordering going on in the form of standards, schemata, file directories, access rights, etc., that affects what kind of interfaces can be created for the database and what kind of trajectories are possible. Even though pure databases do not exist, the *idea* of the pure database has influenced understandings of what a database is and what it can do. For example, there would be no Wikipedia if the founders did not think that it was possible to collect all items belonging to the sum of human knowledge in a database and to provide different trajectories or interfaces to access that knowledge. The idea of one database and a myriad of possible interfaces seems to fit smoothly with the instrumental perspective on technology. [31] Technology is neutral: we can all create our own particular stories with the same database. [32]

Related to the idea of the *neutral* pure database is the idea of the *immaterial* pure database. Materiality seems only to kick in when we design interfaces to organize the items in the database. Thus, the regulatory agency of the database itself – the way it regulates what can

28. Lev Manovich, *The Language of New Media*, Cambridge, MA: MIT Press, 2001.
29. Ibid., p. 225.
30. Ibid., p. 238.
31. Andrew Feenberg, *Transforming Technology: A Critical Theory Revisited*, Oxford: Oxford University Press, 2002.
32. In an instrumental perspective technology is perceived as neutral towards use. Only humans are considered having the agency to direct the use of technology for *good* or for *bad* applications.

be made visible in the database, how we (can) know the world, and who can be a knower – moves to the background. In this section I will explore the materiality of database design by looking at two database projects: Wikipedia and TAMI. Wikipedia's aspiration is global: it wants to organize the sum of human knowledge and make it accessible to every single person on the planet. TAMI is a local database project in Australia and includes only a few people, namely some aboriginal knowers and some researchers. Instead of a comparative reading of the two database designs, I have read the two database stories together and through each other, in what is called a *diffractive reading*. Donna Haraway uses the optical metaphors of reflection and diffraction to explain these different kinds of reading. In a reflective reading of the two database designs, the 'rays' of our analytical lens would reflect images of the two designs. What we would see are two separate unified wholes with clear, fixed boundaries. Comparing the two databases would focus our attention on the most immediate differences and would highlight differences we already know, such as such as size, scale, objectives, language, etc. A diffractive reading means that our analysis of one database can't be separated from the analysis of the other database. In my reading the rays of my analytical lens travel through the two designs. The resulting diffraction patterns focus our attention on the entanglement of the two databases: they intra-act and produce differences that matter. [33]

Wikipedia: Fragmenting Knowledge

What is knowledge? Wikipedia's description of knowledge [34] mentions that there is no single agreed definition and numerous competing definitions:

> *Knowledge* is defined by the Oxford English Dictionary as (i) expertise, and skills acquired by a person through experience or education; the theoretical or practical understanding of a subject; (ii) what is known in a particular field or in total; facts and information; or (iii) awareness or familiarity gained by experience of a fact or situation. Philosophical debates in general start with Plato's formulation of knowledge as "justified true belief." There is however no single agreed definition of knowledge presently, nor any prospect of one, and there remain numerous competing theories. Knowledge acquisition involves complex cognitive processes: perception, learning, communication, association and reasoning. The term *knowledge* is also used to mean the confident understanding of a subject with the ability to use it for a specific purpose if appropriate. See knowledge management for additional details on that discipline. [35]

This description does not tell us anything about the materiality of knowledge. It assumes a separation between knowledge and the bodies and things with which, and through which, we come to know. Such a separation between knowledge and the knower is one of the characteristics of mainstream understandings of knowledge found in Western epistemologies.

33. Barad; Haraway, *Modest_Witness@Second_Millenium.FemaleMan©_Meets_Oncomouse™*.
34. It is not my intention to give a complete overview of how knowledge is organized in Wikipedia or to challenge the content of the Wikipedia articles mentioned in this chapter.
35. Wikipedia contributors, 'Knowledge', http://en.wikipedia.org/wiki/Knowledge.

How does Wikipedia describe the knowledge found in non-Western epistemologies? How would it call such knowledge? Indigenous knowledge? Native knowledge? Traditional knowledge? Aboriginal knowledge? Wikipedia's article on Indigenous peoples mentions:

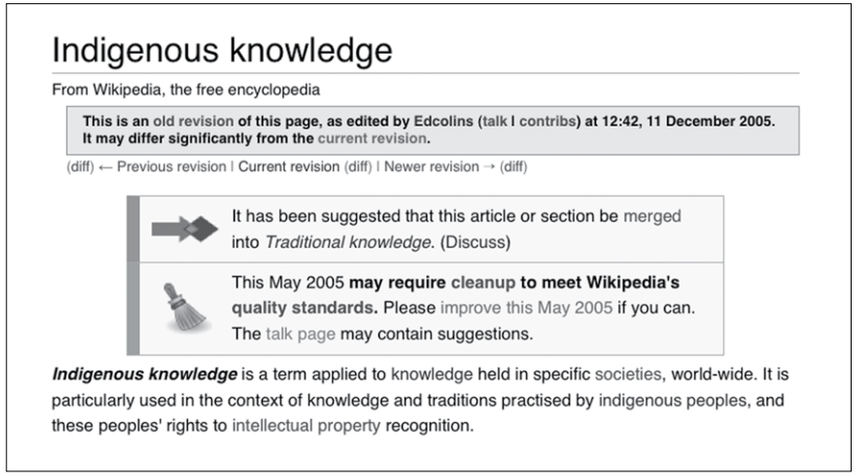
> Other related terms for Indigenous peoples *include aborigines, aboriginal people, native people, first people, fourth world cultures* and *autochthonous.* 'Indigenous peoples' may often be used in preference to these or other terms as a neutral replacement, where such terms may have taken on negative or pejorative connotations by their prior association and use. It is the preferred term in use by the United Nations and its subsidiary organizations. [36]

An article with the subject heading 'Indigenous knowledge' once existed in Wikipedia and was first published on 21 April 2005. [37] The focus of the article was to describe the different aspects of Indigenous knowledge as well as to point out some of the tensions between Indigenous and non-Indigenous knowledge and traditions. The article was published in the category Indigenous Peoples.

On 9 December 2005, a new article was published, called 'Traditional knowledge'. The article started with a description of traditional knowledge and focused on the protection of traditional knowledge using intellectual property laws and international conventions, in particular the World Intellectual Property Organization (WIPO), which uses the term traditional knowledge. [38] The article was published in the category Intellectual Property.

We see here two different terms for the knowledge of Indigenous peoples: *Indigenous knowledge* and *traditional knowledge*. This is at first not surprising because the two articles have different perspectives and locations in Wikipedia's taxonomy. 'Indigenous knowledge' is a topic in the category Indigenous People and 'Traditional knowledge' is a topic in the category Intellectual Property. The next day, 10 December 2005, an editor of the 'Traditional knowledge' article added a link to the 'Indigenous knowledge' article. On 11 December 2005, a Wikipedia administrator published a message at the top of the 'Indigenous knowledge' article, proposing to merge the two articles (see Figure 3). Only five minutes after this proposal was posted on the Wikipedia article, the same administrator merged the 'Indigenous knowledge' article into the 'Traditional knowledge' article. The reason cited by the administrator is *copyvio*, which is a reference to copyright violations. [39]

36. Wikipedia contributors, 'Indigenous_peoples', http://en.wikipedia.org/wiki/Indigenous_peoples, accessed 30 June 2010.
37. Wikipedia contributors, 'Indigenous_knowledge', http://en.wikipedia.org/w/index.php?title=Indigenous_knowledge&oldid=12607474.
38. World Intellectual Property Organization, http://www.wipo.int/tk/en/.
39. Wikipedia contributors, 'Indigenous_knowledge', http://en.wikipedia.org/w/index.php?title=Indigenous_knowledge&action=history.
40. Wikipedia contributors, 'Indigenous_knowledge (old)', http://en.wikipedia.org/w/index.php?title=Indigenous_knowledge&oldid=30924169.


Indigenous knowledge

From Wikipedia, the free encyclopedia

This is an old revision of this page, as edited by Edcolins (talk I contribs) at 12:42, 11 December 2005. It may differ significantly from the current revision.

(diff) ← Previous revision I Current revision (diff) I Newer revision → (diff)

It has been suggested that this article or section be merged into *Traditional knowledge*. (Discuss)

This May 2005 **may require cleanup to meet Wikipedia's quality standards.** Please improve this May 2005 if you can. The talk page may contain suggestions.

Indigenous knowledge is a term applied to knowledge held in specific societies, world-wide. It is particularly used in the context of knowledge and traditions practised by indigenous peoples, and these peoples' rights to intellectual property recognition.

Figure 4. Proposal to merge. [40]

As a result, none of the content of the 'Indigenous knowledge' article merges into the 'Traditional knowledge' article. Only the *term* 'Indigenous knowledge' survives the merge by being added to the description of traditional knowledge:

> *Traditional knowledge* (TK) and *indigenous* [sic] *knowledge* generally refer to the matured long-standing traditions and practices of certain regional communities. [41]

The discussion page of 'Traditional knowledge' [42] confirms that this article is more about intellectual property rights than about understanding the knowledge of Indigenous peoples. It also refers to an unsettled discussion over the Point of View (POV) of the article. The same administrator who merged the 'Indigenous knowledge' page into the 'Traditional knowledge' page proposes to merge the article with the 'Indigenous intellectual property' article. [43] This administrator, as his user page shows, [44] specializes in intellectual property issues, which might explain his focus on knowledge as a commodity and not on knowledge as a practice, which was the focus of the 'Indigenous knowledge' article.

41. The term 'regional communities' is not explained in this description. WIPO uses the term 'regional communities', whereas UN organizations use the term 'local communities'.
42. Wikipedia contributors, 'Talk:Traditional Knowledge', http://en.wikipedia.org/wiki/Talk:Traditional_knowledge.
43. Wikipedia contributors, 'Talk:Traditional Knowledge'. This doesn't happen because, according to another editor, we don't merge the knowledge article with the intellectual_property article, so why would we merge Indigenous_knowledge into the Indigenous_intellectual_property article?
44. Wikipedia contributors, 'User:Edcolins', http://en.wikipedia.org/wiki/User:Edcolins.

Another topic in the discussion of the 'Traditional knowledge' page has the title *Is 'traditional knowledge' knowledge?*[45] As a result, a new paragraph was added to the 'Traditional knowledge' article in January 2007:

> "Traditional knowledge" is not recognized as knowledge by all who study it since it includes beliefs, values and practices. These critics argue that these elements cannot be considered "knowledge" because they do not constitute "justified true belief" (the definition of "knowledge"). This criticism is elaborated upon in the discussion forum.[46]

About six months later, the second and third sentences were deleted.

Then, in November 2008, a new Wikipedia article was created with the title 'Traditional environmental knowledge', created in the category Knowledge.[47] On February 2009, another new article was created with the title 'Traditional ecological knowledge' and is located in the category Anthropology Stubs.[48] These articles refer to Indigenous knowledge, and both seem to represent particular academic perspectives.

After three years, the last remaining sentence doubting a knowledge status for 'Traditional knowledge' was deleted on 25 May 2010.[49] The reason for deletion seems, according to the stated motivation by the editor, purely managerial. The sentence had no citation and therefore seemed original research, thus violating one of Wikipedia's policies:

> Wikipedia does not publish original thought: all material in Wikipedia must be attributable to a reliable, published source. Articles may not contain any new analysis or synthesis of published material that serves to advance a position not clearly advanced by the sources.[50]

The use of an editorial policy to delete a sentence in an article can also be a tactical decision. The editor could have written a comment in the 'Talk:Traditional Knowledge' page, arguing that all knowledges, also Western science, include 'beliefs, values, and practices'. This could have started a discussion in which it would become impossible to delete the sentence without any protest.

As of June 2010, the bulk of the 'Traditional knowledge' article is still about property rights and international conventions. Any Wikipedia visitor searching for Indigenous knowledge is

45. Wikipedia contributors, 'Traditional_knowledge', http://en.wikipedia.org/wiki/Talk:Traditional_knowledge.
46. Wikipedia contributors, 'Traditional_knowledge (old)', http://en.wikipedia.org/w/index.php?title=Traditional_knowledge&oldid=102936873.
47. Wikipedia contributors, 'Traditional_environmental_knowledge', http://en.wikipedia.org/wiki/Traditional_environmental_knowledge.
48. Wikipedia contributors, 'Traditional_Ecological_Knowledge', http://en.wikipedia.org/wiki/Traditional_Ecological_Knowledge.
49. Wikipedia contributors, 'Traditional_knowledge (old)', http://en.wikipedia.org/w/index.php?title=Traditional_knowledge&oldid=364118944.
50. Wikipedia contributors, 'Wikipedia:OR', http://en.wikipedia.org/wiki/Wikipedia:OR.

redirected to this page with its focus on knowledge as a commodity that needs some form of protection. The 'Traditional knowledge' article is not categorized under the category Knowledge[51] in Wikipedia's categorization system, which forms the basis for its taxonomy.

We can thus see how the knowledges of Indigenous peoples have become marginalized within the intellectual property discourse that forms the main theme of the 'Traditional knowledge' article. Neither do the latest additions – the articles on 'Traditional environmental knowledge' and 'Traditional ecological knowledge' – contribute to the understanding of the structures and contents of the knowledges of Indigenous peoples. They rather contribute to the further fragmentation of the topic along Western academic perspectives. The knowledge of Indigenous people is scattered among a wide variety of categories and without any meaningful relations between them. This fragmentation becomes clearer when we look at the content of the knowledge of Indigenous peoples in Wikipedia. To give one example, Wikipedia has an excellent article on *terra preta*, an ancient Indigenous soil management practice found in the Amazon basins.[52] Several universities and companies are now investigating terra preta to enrich poor tropical soils and as a method to store carbon in order to mitigate global warming. There are, however, no links between this article and any of the articles discussed above.

The fragmentation of Indigenous knowledge in Wikipedia is also the effect of Wikipedia's classification system. Each article in Wikipedia has a particular place in the category system.[53] The 'Traditional knowledge' article is found in five Wikipedia categories: Indigenous People, Intellectual Property Law, Oral Tradition, and Commercialization of Traditional Medicines.[54] Wikipedia has no category to connect all articles on Indigenous knowledge. Olson and Ward[55] use the term *diasporized* when referring to the dispersion of marginalized groups in library classification systems. Similarly, we can see the diasporization of Indigenous knowledge in Wikipedia. The knowledge of Indigenous peoples is dispersed in the Wikipedia database: there is no 'interface'[56] that would enable a Wikipedia user to find a trajectory through this fragmented body of knowledge.

In my Wikipedia account I have brought the materiality of Wikipedia to the foreground. These material aspects, such as the editorial policies and the category system, regulate human knowledge by producing it through its own ordering practices. Wikipedia, as a database design, *performs* the knowledge it proposes to organize. In the next story I will zoom in on the *performativity* of database design by looking at a very small database.

51. Wikipedia contributors, 'Category:Knowledge', http://en.wikipedia.org/wiki/Category:Knowledge.
52. Wikipedia contributors, 'Terra_preta', http://en.wikipedia.org/wiki/Terra_preta.
53. Wikipedia contributors, 'Wikipedia: Categorization', http://en.wikipedia.org/wiki/Wikipedia:Categorization.
54. There is a category Knowledge in Wikipedia, but the article is not linked to that category.
55. Hope A. Olson and Dennis B. Ward, 'Ghettoes and Diaspora in Classification: Communicating Across the Limits', Bernd Frohmann (ed.), *Communication and Information in Context: Society, technology, and the Professions. Proceedings of the 25th Annual Conference/Association canadienne des sciences de l'information: Traveaux du 25e congrès annuel*, Toronto: Canadian Association for Information Science, 1997, pp. 19-31.
56. Manovich.

TAMI: Doing Knowledge

TAMI is a database developed in a project called Indigenous Knowledge and Resource Management in Northern Australia. TAMI is a database design for 'doing collective memory' of Indigenous communities in Australia. The project emerged within the dilemma of the compatibility of digital technologies and Indigenous knowledges on the one hand and, on the other, the need to find ways to keep the knowledge of the elderly people of the community before they passed away. [57]

TAMI stands for text, audio, movies, images, and these four categories form the only dataset in the database design. Instead of developing a more conventional design, based on the 'encyclopedic archive model', TAMI's design is informed by the objective to be *ontologically flat*:

> Other projects approach design as a problem of managing various givens in socio-technical contexts, rather than seeing them as philosophical and technical puzzles that take specific forms. Because of this other projects end up designing tools for managing difference so it is subordinated to a sameness that connects. This has the effect of both trivializing difference, and entrenching an on-going blindness to the profound ontological issues at stake in design. [58]

TAMI never developed beyond its prototype stage, but the experiences in this project, which ran from 2003 to 2006, may provide us with particular insights in the performativity of database design.

According to the Western researchers involved in the development of TAMI, the database's limited dataset minimizes Western assumptions of how to organize knowledge, as TAMI is a database developed with and for an Aboriginal community in Australia. A Western metadata structure will determine how an object will be ordered in the overall system, thereby limiting its possibilities for its relations. [59] The researchers in the project write: 'If we assume rather that knowledge is produced at the point of performance of situated understandings we come to the conclusion that the producers of knowledge are to be inextricably involved in its production and reproduction'. [60]

In TAMI, digital objects, such as a written story, a photo, a spoken story, or a video, can be uploaded and organized according to their formats (text, audio, movie, image). The objects can have file names, but they can't get tags. One can browse through the four directories that are based on the four formats and select objects by moving them into a central frame or window, a kind of workplace. By organizing a collection of objects in this central frame,

57. Helen Verran, Michael Christie, Bryce Anbins-King, Trevor Van Weeren, and Wulumdhuna Yunupingu, 'Designing digital knowledge management tools with Aboriginal Australians', *Digital Creatvity* 18.3 (2007).
58. Ibid, p. 132.
59. Ibid.
60. Ibid.

Figure 5. TAMI. [61]

knowledge is produced about a particular place and/or event. The meaning of each individual item in the central frame emerges out of its relations with the other items.

The digital objects stored in TAMI are not knowledge objects. They 'represent traces of previous knowledge-production episodes which can become useful again in new contexts of performative knowledge making'. [62] When a story is performed, by bringing a particular set of items together in the central window, it can be saved as a collection, and metadata can be added. In that sense TAMI helps make visible the relations between Indigenous knowledge practices. It is the use of the digital objects, by making the connections between the selected objects visible, that informs the logic of the database structure.

David Turnbull, a researcher involved in similar projects, [63] describes three central protocols underlying database designs such as TAMI: [64]

1. Autonomous local knowledge mapping: knowledge should be autonomously managed where it is created and used.

2. Local ontology mapping: the system must provide a way for each community to make explicit its own context.

3. Emergent mapping through making connections: each community must be enabled to create relations with explicit contexts of other communities. Rather than requiring that

61. TAMI, http://www.cdu.edu.au/centres/ik/db_TAMI.html#.
62. Helen Verran, et. al., p. 132.
63. See, for example, Storyweaver: http://indigenousknowledge.org/tools-and-resources/storyweaver
64. David Turnbull, 'Maps Narratives and Trails: Performativity, Hodology and Distributed Knowledges in Complex Adaptive Systems – an Approach to Emergent Mapping', in Geographical Research *45.2 (2007): 140–149.*

> each local context is translated/mapped into a centrally built and shared knowledge map, such as Wikipedia, connections are created by partial mappings from context to context.

TAMI and other database designs that are based on these protocols intervene in the representationalist perspective that informs database designs such as the one underlying Wikipedia. This perspective is based on the illusion that an organization of knowledge represents in one way or the other the world *out there*.[65] TAMI intervenes in this perspective by acting on the understanding that knowledge is the result of a direct material engagement with the world.

When Knowledges Meet

I have described Wikipedia and TAMI as very different database projects. A comparison of the two will therefore risk becoming a mapping of their quantitative and qualitative differences and normative statements about which is better or more successful. Continuing the diffractive reading of the two designs enables us to map the effects of their differences and where these effects appear.[66] Such a diffractive reading will generate new connections and 'communications across irreducible differences'.[67]

In my descriptions of Wikipedia and TAMI, I focused on the materiality of their design. TAMI's design is understood as playing an agentive role in both the ordering of knowledge in TAMI and in the emergence of new kinds of knowers and knowledge. As a result, the materiality of TAMI is always in the foreground in the descriptions and discussions of TAMI. This is rather different in the case of Wikipedia. One factor may be that Wikipedia's informational and philosophical ontology are not perceived as conflicting. Wikipedia aspires to organize the sum of human knowledge by ordering this knowledge into an information ontology. Such an ontology is understood as representing both what (can) exist in the world and the relations between the different knowledge objects. In TAMI, knowledge doesn't exist, it *becomes*: knowledge comes into existence as the result of the ordering of objects. In Wikipedia, one *is* a knower if one's knowledge fits Wikipedia's informational ontology. In TAMI one *becomes* a knower by performing knowledge, by making connections between the digital objects in the database. The agentive and generative capacities of the database designs of Wikipedia and TAMI become clear: each design materializes particular kinds of knowledge and knowers.

In TAMI I described a designed space in which the database design and the knower meet, and knowledge is performed. It is a space in which two different knowledges, the Western-scientific knowledge underlying the design and development of digital technologies and the knowledge of an Indigenous community, meet and transform. This space is not found in the overlap between the two distinct knowledges, but should rather be understood as a third

65. John Law, *After Method: Mess in Social Science Research*, London: Routledge, 2004.
66. Donna Haraway, 'The Promises Of Monsters: A Regenerative Politics of Inappropriate/d Others', in Lawrence Grossberg, Cary Nelson and Paula Triechler (Eds), *Cultural Studies*, New York: Routledge, 1991.
67. Donna Haraway, *The Companion Species Manifesto: Dogs, People, and Significant Otherness,* Chicago: Prickly Paradigm Press, 2003, p. 49.

space or as a space in-between, a *contact zone* in which multiple ontologies meet, clash, connect, and intra-act.

Anthropologist Mary Louise Pratt first defined the concept of the contact zone and described it as 'the social spaces where cultures meet, clash, and grapple with each other, often in contexts of high asymmetrical relations of power, such as colonialism, slavery, or their aftermaths as they are lived out in many parts of the world today'.[68] Anthropologist James Clifford applied the notion of contact zone to museums.[69] He wrote that contact does not presuppose two sociocultural wholes that meet, but the meeting of systems already constituted relationally, entering new relations through historical processes of displacements. Building forth on these understandings, Donna Haraway speaks about contact zones as 'world-making entanglements'.[70]

Wikipedia and TAMI are both sites of world-making entanglements, but their worlds seem utterly incompatible. The worldview of the Aboriginal community of TAMI is incommensurable with the Western-scientific worldview underlying Wikipedia. So if we take Wikipedia's calls for organizing the sum of human knowledge seriously, we may need to look at how the ontologies of Wikipedia and Indigenous knowledges can meet. Trying to fit Indigenous knowledges in Wikipedia's design would destroy precisely that what we try to keep. The question thus becomes: Can we imagine a Wikipedia in which incommensurable knowledges can meet *and* stay 'alive'?

Ordering Through Authoring

> Discussion as to which connections are productive and which are to be ignored need to be made as the databases are used, not as they are constructed.[71]

Wikipedia describes itself as based on an openly-editable model. It is written collaboratively, and it covers 'existing knowledge which is verifiable from other sources' and 'each contribution may be reviewed or changed'.[72] Classification work is primarily done by the people who write, edit, and administrate Wikipedia articles. Some editors and administrators are particularly interested in the overall organization of articles in Wikipedia and participate in Wikipedia-wide projects to improve the overall organization of articles.

People who are interested in the appropriate ordering and presentation of a specific topic can organize themselves by starting a Wikiproject.[73] For example, the Anarchist Task Force of the WikiProject Philosophy/Anarchism mentions on its project page, 'The Anarchism Task

68. Marie Louise Pratt, 'Arts of the Contact Zone', in *Profession* 91, New York: MLA (1991): 33.
69. James Clifford, *Routes: Travel and Translation in the Late Twentieth Century*, Cambridge, MA: Harvard University Press, 1997.
70. Donna Haraway, *When Species Meet*, Minnesota: University of Minnesota Press, 2007.
71. Michael Christie, 'Computer Databases and Aboriginal Knowledge', in *Learning Communities: International Journal of Learning in Social Contexts*, 1,1 (2004): 6.
72. Wikipedia contributors, 'About', http://en.wikipedia.org/wiki/Wikipedia:About.
73. Wikipedia contributors, 'WikiProject', http://en.wikipedia.org/wiki/WikiProject.

Force sees that all anarchism articles are properly categorized, and that these categories are accurate, up-to-date, and streamlined for ease of use. This ensures that readers can easily research topics of interest'. [74]

A similar approach to everything Indigenous would definitely contribute to a more 'streamlined' ordering of the Indigenous worlds in Wikipedia, but this ordering would still need to fit the Western ontology and taxonomy underlying Wikipedia. The two incommensurable knowledges would meet, but one will necessarily be subjugated to the other.

How to support knowledge diversity in Wikipedia? How to enable 'communication across irreducible differences'? The TAMI database design incorporated the agentive role of technology and provided tools that the Aboriginal community could use to design their own knowledge organizations. The flat ontology of the database enabled users to generate relevant and meaningful ontologies. For example, in Wikipedia we can search on the term 'wolf' to get an answer on the question *What is a wolf?* This question makes sense for some, but what if wolves are part of your daily environment? In some Indigenous cultures the important question to ask is: 'Who is a wolf?' [75] Knowledge of the behaviour of a wolf is, in such cultures, more important than a description and classification of the wolf according to Linnaeus. [76]

One option might be to *undesign* [77] Wikipedia in order to make space for multiple designs. Such an undesigned design would come closer to Manovich's 'pure database', allowing individual users or communities of users to design their own interfaces and trajectories to organize the items in the database.

Another option is to redesign Wikipedia as an authoring tool instead of a container with more or less fixed compartments. Such an open, unfinished database design provides Wikipedia users the tools to perform their knowledge and at the same time design their database. The question then becomes one of making connections between these different databases. Wikipedia has decentered [78] the authoring of knowledge. Maybe we can take this decentering a step further? When we begin to imagine Wikipedia as a contact zone, we can start thinking of different Wikipedia access points connected with different modes to remix, to design and

74. Wikipedia contributors, 'Anarchism', http://en.wikipedia.org/wiki/Wikipedia:WikiProject_Philosophy/Anarchism.
75. This example is taken from Glen Aikenhead, 'Integrating Western and Aboriginal Sciences: Cross-Cultural Science Teaching', *Research in Science Education*, 31, 3 (2001): 337-355.
76. Wikipedia contributors, 'Wolf', http://en.wikipedia.org/wiki/Wolf.
77. Martin Brigham and Lucas Introna, 'Invoking Politics and Ethics in the Design of Information Technology: Undesigning the Design', *Ethics and Information Technology*, 9 (2007): 1-10. Maja van der Velden, 'Undesigning Culture: A Brief Reflection on Design as Ethical Practice', *Cultural Attitudes towards Technology and Communication 2010*, Proceedings of the Seventh International Conference on Cultural Attitudes towards Technology and Communication 2010, Vancouver, Canada, 15-18 June 2010, pp. 117-123.
78. Andrew Cunningham and Perry Williams, 'De-centring the 'Big Picture': The Origins of Modern Science and the Modern Origins of Science', *The British Journal for the History of Science,* 26 (1993).

to make connections, both within Wikipedia as well as across other knowledge communities. Such a Wikipedia has the potential to become a distributed database of local ontologies – a Wikipedia in which human performances are respected and remain meaningful.

ACKNOWLEDGEMENT

I would like to thank Nathaniel Tkacz for introducing me to the work of Lorraine Daston, and I would like to thank Ann Doyle, Gene Joseph, and Kim Lawson of the Xwi7xwa library for sharing their knowledge with me.

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THE MISSING WIKIPEDIANS

HEATHER FORD

Much has been said of the future of Wikipedia, from prophesies that the online encyclopedia will fail due to increasing spam, to claims that, as large parts of the world go online, Wikipedia might see a wave of new editors from Zambia to Indonesia who fill in Wikipedia's holes. In a project that aims to 'make all human knowledge accessible', those blank spots can mean many things: the hundreds of thousands of places not yet mentioned, the thousands of languages that either don't have their own encyclopedia or are struggling to build one, and the countless things that people know about their world but are not in written form.

This essay is not so much concerned with the future of the English version of Wikipedia (which receives the most prophesying), but with the 277 other language Wikipedias. Will this number shrink as editors tire of their lonely pursuits, or will it grow as more of the world goes online? As large parts of Africa plug in to the internet, it is expected that they will start to edit Wikipedia in their own language, but both of these assumptions may be incorrect. Firstly, a number of external and internal factors limit this new wave of editors, and secondly, the scale of smaller Wikipedias may mean that they are overshadowed by motivations to edit the larger, more powerful English version.

'Makmende's so huge, he can't fit in Wikipedia' [1]

In mid-2010, a furor erupted in a small corner of the internet. The facts sounded all too familiar: a group of Wikipedia editors fighting over whether a topic was notable or not. The so-called 'deletionists' against the 'inclusionists' – those who thought the encyclopedia should retain a certain quality, necessitating strict editorial control, versus those who thought that Wikipedia's goal is much broader and more global than other encyclopaedias.

But a closer look at this blip on Wikipedia's radar exposed interesting details epitomizing Wikipedia's current growth problems and challenges as it seeks to 'make all human knowledge accessible'. The frontline of this battle was a page called 'Makmende' that struggled to be born on the English encyclopedia. In March 2010, Kenya enjoyed what has been touted as its first viral internet sensation. While even Eastern Europe has had its share of singing kittens and political remixes, this East African country had not yet experienced the spread of a local meme that captures the world's imagination. The breakthrough came in the form of an interesting local hack of Hollywood culture originating on the streets of Kenya in the 1990s.

1. This was the headline of a blog post by Ethan Zuckerman on 24 March 2010, http://www.ethanzuckerman.com/blog/2010/03/24/makmendes-so-huge-he-cant-fit-in-wikipedia/ .

The Swahili slang (sheng) word for 'hero', 'Makmende' originates from a mispronunciation of Clint Eastwood's phrase 'Go ahead, make my day' (Mek ma nday) – a phrase popularized in the streets of Kenya in the 1990s when a 'bad guy wannabe would be called out and asked "Who do you think you are? Makmende?"' [2] In early 2010 a local band, 'Just a Band', resurrected the fictional Kenyan superhero in the music video for their song *Ha-He*. In the music video, the band features Makmende beating up 'bad guys' and even ignoring the girl in a hilarious throwback to the fictional character.

What followed was a popular acknowledgement of Makmende that resonated beyond local Twitter users. Like other successful memes, Makmende enabled people to participate in the joke and thereby 'own' a piece of the meme. According to local digital marketing strategist Mark Kaigwa, people either replaced popular Chuck Norris jokes with Makmende or created their own. Radio stations in Nairobi invited people to call in Makmende jokes when local journalist Larry Madowo noticed the Kenyan twittersphere buzzed with Makmendes.

In the midst the enthusiasm, Makmende fans created a Wikipedia page about the meme. Wikipedia admins then repeatedly deleted the page, initially on 'criteria for speedy deletion' G1 ('Patent nonsense, meaningless, or incomprehensible'), then G12 ('Unambiguous copyright infringement)', and finally G3 ('Pure Vandalism'). Wikipedia editors argued for deletion because there existed 'no reliable sources, and no claims of notability'. Pointing to the lack of sources relating to African culture online, user Cicinne came back with this retort: 'The problem is that there is hardly any content on African influences in the 90's and 80's which may make it hard to make the connections'.

On 24 March, the *Wall Street Journal*'s Cassandra Vinograd reported that 'Kenyan bloggers and Tweeters (had) seized on the video and launched a campaign for the man they're calling Kenya's very own Chuck Norris – complete with one liners about Makmende's superhero skills and prowess'. According to the *WSJ*, Makmende had drawn more than 24,300 hits in the week since its release and collected 19,200 fans on Facebook. [3]

The article was deleted once again, prompting Ethan Zuckerman to write a blog post about the systemic bias operating in the encyclopedia community that would delete the stub:

> The one that's currently under development followed a classic Wikipedia structure – it went up as a brief stub, and has accreted more content in the past few hours. What concerned me is that the attempt to delete that stub argued that the article was unsourced – actually, it was quite well sourced, including a reference to a Wall Street Journal online publication and five weblogs. Perhaps the user who nominated for deletion made a mistake. Or perhaps he acted in bad faith, trying to avoid a battle over notability and tried a different tactic to see the page removed.

2. https://secure.wikimedia.org/wikipedia/en/wiki/Makmende
3. Cassandra Vinograd, 'Kenya Launches Country's First Viral Music Video', *Wall Street Journal,* 24 March 2010, http://blogs.wsj.com/digits/2010/03/24/kenya-launches-country%E2%80%99s-first-viral-music-video/.

> If Wikipedia wants to make progress in improving areas where it's weak – i.e., if it wants to address issues of systemic bias – the community needs to expand to include more Wikipedians from the developing world. Deleting three versions of an article important to Kenyans and trying to delete a fourth doesn't send a strong message that Wikipedia is the open and welcoming community you and I both want it to be. [4]

After receiving coverage on CNN, *Fast Company*, and numerous local Kenyan publications (most of which are not online), the article was eventually voted 'keep', citing the *WSJ* post as proof of notability required to survive and move past the deletion debates. The question then became: if something needs to be 'notable' to get on Wikipedia, by whose standards are we judging notability? Is it about numbers, reputation? Can this be measured? And would this have been debated if it had occurred elsewhere in the world?

This story epitomizes the challenges facing Wikipedia as it comes up against the scope of a traditional encyclopedia. Ethan Zuckerman summed it up:

> Most Wikipedians seemed to accept the idea that different languages and cultures might want to include different topics in their encyclopedias. But what happens when we share a language but not a culture? Is there a point where Makmende is sufficiently important to English-speaking Kenyans that he merits a Wikipedia page even if most English-speakers couldn't care less? Or is there an implicit assumption that an English-language Wikipedia is designed to enshrine landmarks of shared historical and cultural importance to people who share a language? [5]

Interestingly, Makmende does not exist in the Swahili version of Wikipedia, and the battle to put Makmende on Wikipedia came just two months after Kenyans were incentivized by Google to create Swahili Wikipedia pages. Where ordinary Kenyans want their cultural narratives to live seems disconnected from where outsiders imagine it.

This story not only represents a clash between the inclusionists and deletionists. It also reflects key issues about the relationship between different Wikipedias in countries where English dominates as the written language, about the motivations of Wikipedians on the edges of the Wikipedia network, and about tensions between existing policies, the goal of the encyclopedia, and the realities of historical knowledge in the developing world.

Background: Wikipedia Growth is Slowing

In August 2006, Diego Torquemada drew a statistical model predicting the English Wikipedia would reach 6 million articles by the end of 2008. This model was based on the premise that more content leads to more traffic, which leads to more edits generating more content. Wikipedia had enjoyed exponential growth until that point, its articles doubling annually from 2002 to 2006.

4. Ethan Zuckerman, 'Makmendes So Huge He Can't Fit Into Wikipedia', 24 March 2010, http://www.ethanzuckerman.com/blog/2010/03/24/makmendes-so-huge-he-cant-fit-in-wikipedia/.
5. Ibid.

Torquemada could not know that Wikipedia had reached its peak in 2006. At a rate of 60,000 articles per month in mid-2006, the number of new articles would follow a downward trend reaching around 35,000 new articles per month by the end of 2009. The number of edits similarly reached a peak in 2007 with 6 million edits and active editors at 800,000. At the end of 2009, the number of edits had levelled out to about 5.5 million, and active editors were down to around 700,000.

The slowing of Wikipedia's growth has been the subject of a number of news articles, as internet commentators predict the site's demise. Wikipedians fight back, saying that they are merely 'consolidating'. To understand the stalled growth, researchers at Palo Alto Research Center scrutinized and interpreted data through an ecological model. Suh, Convertino, Chi and Pirolli likened the stagnation to a Darwinian 'struggle for existence', noting that 'as populations hit the limits of the ecology, advantages go to members of the population that have competitive dominance over others'. Suh, et. al., argued that the 'resource limitations' can be likened to limited opportunities for novel contributions, and the consequences of these limitations will manifest itself in increased patterns of conflict and dominance. Wikipedians, it seemed, had covered all the 'easy' articles and now had 'nothing left to talk about'. [6]

Is Wikipedia really 'running out of things to talk about'? Suh, et. al., suggested that the number of Wikipedia articles could increase due to the growth of new knowledge as a result of scientific studies and global events, but that the size of the encyclopedia was still levelling out. Others like geographer Mark Graham deride claims that Wikipedia is 'running out of things to write about'. Mapping the presence of geotags on Wikipedia, Graham found that there are still 'whole continents that remain a virtual "terra incognita" and that if these places were given the same detailed treatment as in Western Europe and North America, then Wikipedia is only getting started'. [7]

New Wikipedians as the Developing World Comes Online?

Graham suggests that, 'It may be that when broadband reaches more parts of Africa – helped by the landfall of superfast cables in August – that more people there will start discovering Wikipedia, and that the site will see a second explosion of new editors and articles about places that have so far been ignored'. [8]

But it is doubtful whether internet access alone will make people in developing countries contribute to Wikipedia. In his study of 12 different Wikipedia language versions, Morten Rask found that although 'there is a linear relation between the level of internet penetration and reach of the Wikipedia network, there is a stronger linear relationship between the level

6. B. Suh, G. Convertino, E. H. Chi, and P. Pirolli, 'The Singularity Is Not Near', in *Proceedings of the 5th International Symposium on Wikis and Open Collaboration - WikiSym '09*: 1. Presented at the 5th International Symposium, 2009, Orlando, Florida. doi:10.1145/1641309.1641322.
7. Mark Graham, 'Wikipedia's known unknowns', 2 December 2009. http://www.guardian.co.uk/technology/2009/dec/02/wikipedia-known-unknowns-geotagging-knowledge.
8. Ibid.

of human development and internet penetration'. Rask used the United Nations Development Programme's Human Development Index in his study as a comparative measure of life expectancy, literacy, education, and standard of living for countries worldwide. He was interested to find out whether Wikipedia was only for 'rich countries' in order to understand 'who is open to work together in the sharing of knowledge'. [9]

Rask's findings contradict the so-called 'techno-utopians' who claim that the mere existence of either the internet or information and communications technology have the ability to lift developing countries out of poverty. Techno-utopians include commentator Don Tapscott who coined the phrase *wikinomics* to describe 'deep changes in the structure and modus operandi of the corporation and our economy, based on new competitive principles such as openness, peering, sharing, and acting globally'. Tapscott believes that we are living through a 'participation revolution [that] opens up new possibilities for billions of people to play active roles in their workplaces, communities, national democracies, and the global economy at large. This has profound social benefits, including the opportunity to make governments more accountable and lift millions of people out of poverty'. [10]

Access to Wikipedia's 'revolutionary' potential is an extension of this techno-utopian vision. Investigating the 'reach and richness' of Wikipedia, Rask provides a solid critique of statements such as Tapscott's that 'all one needs is a computer, a network connection, and a bright spark of initiative and creativity to join in the economy' by showing that 'Internet penetration is not the only complete and sufficient variable' for development. Analyzing data from 12 Wikipedia language versions and mapping it to variables such as the country's Human Development Index and broadband penetration, Rask was able to show that human development variables were much more critical to participation in Wikipedia than broadband access alone.

Internal Limitations

Apart from the external limitations of human development and broadband penetration, Wikipedians on the edges of the network also face a number of internal challenges reflecting Wikipedians' growing resistance to new content. As those from developing countries come online and try to edit the encyclopedia, a number of conflicts have arisen due to tensions between so-called 'inclusionists' and 'deletionists'.

'Inclusionists' are Wikipedians who would rather see more articles, even if they are short and/or poorly written, while 'deletionists' are concerned with quality, believing that it is more important to have fewer quality articles than several that are poorly written and with questionable notability. In an article entitled, 'The battle for Wikipedia's soul', *The Economist* writes:

9. Morten Rask, 'The Richness and Reach of Wikinomics: Is the Free Web-Based Encyclopedia Wikipedia Only for the Rich Countries?', presented at the Joint Conference of The International Society of Marketing Development and the Macromarketing Society, 2007, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=996158.
10. Don Tapscott, *Wikinomics: How Mass Collaboration Changes Everything*, New York: Portfolio, 2006.

'The behaviour of Wikipedia's self-appointed deletionist guardians, who excise anything that does not meet their standards, justifying their actions with a blizzard of acronyms, is now known as "wiki-lawyering"'. [11]

The Palo Alto Research Center group suggested that the 'deletionists might have won' when they found that the number of reverted edits has increased steadily and that occasional editors experience a visibly greater resistance compared to high-frequency editors. According to Suh, et. al., 'Since 2003, edits from occasional editors have been reverted (at) a higher rate than edits from prolific editors. Furthermore, this disparity of treatment of new edits from editors of different classes has been widening steadily over the years at the expense of low-frequency editors. We consider this as evidence of growing resistance from the Wikipedia community to new content, especially when the edits come from occasional editors'. [12]

Public Goods and the Costs of Contribution

If Wikipedia is available in Swahili and the effort required to start a Swahili page is lower than on the English version, why was the Kenyan community so determined that the Makmende article exist on the English version of Wikipedia?

Clues can be found in debates about public goods. Wikipedia can be considered a public good since it is non-rivalrous (one person's use of Wikipedia doesn't deplete another person's use of it) and nonexclusionary (no one, if they're online at least, can be effectively excluded from using Wikipedia). Peter Kollock, writing in the late 90s about public goods and how their value shifts when placed online, declared that all online community interaction creates remarkable amounts of public goods unprecedented in human history. [13]

Unprecedented as it is, people still need to be motivated to contribute to public goods. The question with regard to the Makmende case is: If people will create public goods when motivations are higher than costs of contributing, what are the relative costs for contributing to English versus Swahili Wikipedia? It is clear from the Makmende example that Wikipedia newbies must navigate a growing bureaucracy and complicated policies when dealing with English Wikipedians, many of whom would rather not have to deal with any more articles to improve. This creates a high barrier to entry that must be offset by higher motivational factors in order to incentivize volunteer activity.

If the costs of contribution in terms of centralized control, bureaucracy, and the lack of 'reliable' sources are higher in the English Wikipedia, then motivations for contributing must have been significantly higher for Kenyans when contributing Makmende to the English version. In his paper on 'The Economies of Online Cooperation', Kollock notes four motivations for providing public goods, including anticipated reciprocity, reputation, sense of efficacy, and need.

11. The Economist, 'The battle for Wikipedia's soul', *The Economist*, 6 March 2008.
12. B. Suh, et al.
13. Peter Kollock, 'The Economies of Online Cooperation: Gifts and Public Goods in Cyberspace', in *Communities in Cyberspace*, London: Routledge, 1999, http://www.sscnet.ucla.edu/soc/faculty/kollock/papers/economies.htm.

Reciprocity

According to Kollock, 'a person is motivated to contribute valuable information to the group in the expectation that one will receive useful help and information in return that is, the motivation is an anticipated reciprocity'. [14]

The promise of reciprocity on the English Wikipedia is relatively high based on the scale of contribution. Even though contributors account for less than one percent of users, the scale of the encyclopedia means that the numbers of active contributors is about 40,000 active editors for 26 per million speakers, versus Swahili Wikipedia with 0.4 editors per million speakers (about 20 active editors). According to Phares Kariuki, he started the Makmende page because there are few opportunities to create a Wikipedia entry that would be populated quickly. Kariuki said that he isn't a regular Wikipedia contributor and that the last time he contributed was many years ago. He points to the small numbers who care enough to promote the page as a problem: 'If I started a page on my high school it would take six years to build up'. Kariuki had tried to edit before but didn't have much success. 'I am a heavy user like most of us here in Nairobi but there's never really been motivation to become an editor before', he said.

Wikipedians on the English Wikipedia are relatively assured that others will continue to contribute, whereas contributors to smaller Wikipedias must understand that numbers of editors are few and that Wikipedia may shut down Wikipedias where growth has stagnated and they are overrun by spam. Interestingly, Eric Goldman's claim that 'Wikipedia will fail in 5 years' because of increasing spam has been more prophetic for smaller Wikipedias than the English Wikipedia. According to Goldman, 'free editability' (allowing anyone to edit) is Wikipedia's Achilles' heel. [15] The sheer scale of the English Wikipedia has won out against spammers in English Wikipedia, but smaller Wikipedias must face a continual battle – especially when their numbers are small in comparison to the spammers.

Reputation

Kollock noted that the effect of contributions on one's reputation is another possible motivation. 'High quality information, impressive technical details in one's answers, a willingness to help others, and elegant writing can work to increase one's prestige in the community', he found.

It is interesting to note that the reputation motivation requires that there are people to impress in the community. Because of the small scale of Swahili Wikipedia, for example, the fact that one can gain prestige from the group might not necessarily be positive if the real power lies outside the group. Because the English version of Wikipedia receives 9 million views per hour, whereas the Swahili version gets 1,700, one's reputation is effectively more highly valued on the English version of Wikipedia.

14. Ibid.
15. Eric Goldman, 'Technology & Marketing Law Blog: Wikipedia Will Fail Within 5 Years', 5 December 2005, http://blog.ericgoldman.org/archives/2005/12/wikipedia_will.htm.

In addition, the content of the article was noteworthy. As a description of Kenya's first internet meme, not the British parliamentary system or the life cycle of bees, the article positioned itself in the global meme framework. 'Look, world', Kenyans seemed to be saying, 'You have your internet memes. Now we do, too'. Framed through an information-sharing lens, people are more likely to contribute expertise as opposed to organizational knowledge because it reveals something unique about their nature. Kenyans shared this information specifically on the English Wikipedia because it was unique globally, and they could contribute their expertise for the first time on a subject they had directly experienced.

Sense of Efficacy

The third possible motivation proposed by Kollock is the sense that a person contributes valuable information because the act results in a sense of efficacy, that is, 'a sense that she has some effect on this environment'. [16] Certainly, those editing Swahili Wikipedia must have a much larger sense that they are affecting change in the environment since their edits are much more likely to be accepted, and they are more likely to develop policies and rules in the emerging Wikipedia. Contrast this with the fact that new content on English Wikipedia will most likely be reverted, revealing Wikipedia's growing isolation from new editors.

From another perspective, however, it can be said that the sense of efficacy would be much greater on the English Wikipedia, since the content of the article is unique and would have an important impact in diversifying its range of material. In this sense, even if the costs of contributing to English Wikipedia are higher, and even if it is much more difficult to have an effect on the environment, the resulting efficacy is large because it is a unique contribution.

Need

According to Kollock, the fourth motivation is altruistic in the sense that individuals value the outcomes of others. 'One may produce and contribute a public good for the simple reason that a person or the group as a whole has a need for it', he says. [17] Here, there may be a stark difference between the need for Swahili language content on Wikipedia as perceived by the international community and the need for it within Kenya.

Kenya's official languages are Swahili and English, with most Kenyans being trilingual, speaking their tribal language as well as Swahili and English. English is the lingua franca of the global business community and arguably that of the internet. Despite 50 million speakers, the Swahili Wikipedia has only about 17,000 articles and 400,000 editors, and Swahili is considered more of a spoken language than a written language. Thus, Kenyans may not regard the need to develop a Swahili encyclopedia as high when they are trying to improve their English in order to become more established in global business.

16. Kollock.
17. Ibid.

Conclusion

Unhindered by long print publication schedules, Wikipedia is able to reflect events and incidents as soon as they happen, rather than record only those that a smaller group of experts decide is important. As broadband access grows in large parts of Africa and Asia, Wikipedia could expand to include a massive new corpus of previously unrecognized viewpoints.

Recent studies have shown a consolidation of power in Wikipedia and that attempts to broaden the scope of the encyclopedia are often met with aggressive deletionism. Wikipedia is considered 'revolutionary' because it is written by 'ordinary people' rather than 'experts', but Wikipedia still reflects the perspective of a small, homogenous, geographically close community.

Although the costs of contributing to smaller Wikipedias are arguably lower, people in developing countries like Kenya see the English Wikipedia as the relevant venue for articles revealing Kenya's unique contribution to global phenomena. The motivations for contributing to the English Wikipedia are therefore much greater than contributing to the Swahili version, but it is unlikely that the vast gaps in geographical and cultural content will be filled when the costs of contribution are so large.

My conclusion is that, far from having nothing left to talk about, Wikipedia has many holes to fill, but that the homophily of the current network is coming up against its need to expand and diversify. Without a strategy for dealing with local notability, Wikipedia will continue to battle its impediments to growth and will ultimately fail to realize more diverse, global participation.

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WIKI SPACE
PALIMPSESTS AND THE POLITICS OF EXCLUSION

MARK GRAHAM

Material and Virtual Places

> 'Which lines we draw, how we draw them, the effects they have, and how they change are crucial questions'. [1]

Wikipedia is often described as an exercise in both anarchy and democracy, where dominant narratives and representations are deconstructed and an array of opinions and interpretations of the world are made visible. However, it has also been argued that power-relations in Wikipedia debates often mirror the exclusion of alternate narratives offline, with contributions disproportionately coming from young, Western males. These debates are especially important in the context of virtual representations of physical places. Because Wikipedia has become the de facto global reference of dynamic knowledge, representations within the encyclopedia form an integral part of spatial palimpsests. As such, this chapter argues that how places are represented and made visible (or invisible) in Wikipedia has a potentially immense bearing on the ways that people interact with those same places culturally, economically, and politically. In other words, power relationships and divisions in the offline world (related to class, gender, nationality, etc.) often exclude certain types of knowledge in online representations.

Our cultural, economic, and political understandings of place are based on innumerable layers of brick, steel, and concrete; they are comprised not only of material experiences, but also memory, history, photographs, videos, stories, and of course encyclopedia entries. These material and virtual layers can be referred to as the palimpsests of place. [2] Because Wikipedia is now a de facto global reference of dynamic knowledge, representations within the encyclopedia form an integral part of spatial palimpsests. The spatial representations distributed throughout Wikipedia thus ultimately become a performative media embedded into the myriad decisions made by hundreds of millions of users. [3]

1. John Pickles, *A History of Spaces*. London, Routledge, 2004, p. 3.
2. Mark Graham, 'Neogeography and the Palimpsests of Place: Web 2.0 and the Construction of a Virtual Earth'. *Tijdschrift voor Economische en Sociale Geografie* 101(4), 422-436, 2010.
3. See for example, Gary Hall. 'Wikination: On Peace and Conflict in the Middle East', *Cultural Politics: an International Journal* 5: 5-25, 2009.

Places are shifting, conflicting and intersecting texts, and their representations have always been the subject of power struggles.[4] Any spatial representation 'stabilizes a particular meaning within a world of possible meanings. And in this modern world it generally does this by asking us to look at this thing, this object, this place'.[5] Abstracted from concrete realities, representations of the material world potentially facilitate domination and control over the subjects of any representation.[6] Ian Barrow, for instance, has demonstrated that colonial era maps of India were used to naturalize British rule.[7] Stickler likewise explored how black settlements were often made invisible in maps of South Africa during apartheid.[8]

The ability to create online representations of the offline world has undergone enormous transformations in recent years. What I have elsewhere called 'cloud collaboration' potentially allows anyone with internet access to contribute to the virtual layers of the palimpsests of place.[9] These representations become part of the palimpsests that surround us and that we move through, touch, see, and hear. Place can be represented in myriad ways online, but Wikipedia, one site with hundreds of millions of users, is by far the most accessed, most contributed to, and most visible of any projects drawing on cloud collaboration.[10]

Wikipedia is increasingly featured in the top results of all major search engines. For instance, if using Google to search for each of the world's 50 most populous cities, only one search term (Toronto)[11] does not have a Wikipedia entry as the first result.[12] Querying the names of provinces in Thailand, only eight of the 76 provinces do not have a Wikipedia entry as the first search result (those eight have a Wikipedia entry as the second search result). Similarly, when searching names of major cities in West Bengal, 30 out of the 34 retrieved Wikipedia articles

4. For example: Carolyn Springer, 'Textual Geography: The Role of the Reader in "Invisible Cities"', *Modern Language Studies* 15(4): 289-299, 1985; Paulina Raento and Cameron J. Watson, 'Gernika, Guernica, Guernica?: Contested meanings of a Basque place', *Political Geography* 19(6): 707-736, 2000; Tom Mels, 'The Low Countries' Connection: landscape and the struggle over representation around 1600', *Journal of Historical Geography* 32(4): 712-730, 2006; Matthew Zook and Mark Graham, 'The Creative Reconstruction of the Internet: Google and the Privatization of Cyberspace and DigiPlace', *Geoforum* 38: 1322–1343, 2007.
5. Pickles, p.3.
6. Jeremy W. Crampton and John Krygier, 'An Introduction to Critical Cartography', *ACME: An International E-Journal for Critical Geographies* 4(1): 11-33, 2006.
7. Ian J. Barrow, *Making History, Drawing Territory. British Mapping in India, c. 1756-1905*, New Delhi: Oxford University Press, 2003.
8. P. J. Stickler, 'Invisible towns: A case study in the cartography of South Africa', *GeoJournal* 22(3) (1990): 329-333.
9. Mark Graham, 'Cloud Collaboration: Peer-Production and the Engineering of Cyberspace', *Engineering Earth*. in S. Brunn (ed). New York, Springer: in press 2010; Mark Graham, 'Neogeography and the Palimpsests of Place: Web 2.0 and the Construction of a Virtual Earth', *Tijdschrift voor Economische en Sociale Geografie* 101(4) (2010): 422-436.
10. Alexa, 'Daily Website Reach Statistics', http://www.alexa.com, 2009.
11. In this case the Wikipedia entry for Toronto was second in the Google rankings.
12. This search was conducted on 30 November 2009 using google.com from a computer located in the United Kingdom. It is conceivable that a computer located in another territory or using an alternate regional version of Google would encounter different results.

came first in Google's search results.[13] In fact, data demonstrates that almost 50 percent of traffic to Wikipedia comes from Google.[14] The results are clearly not a comprehensive sample, but it is undeniable that Google feeds an enormous amount of traffic into articles about place in Wikipedia and therefore reinforces Wikipedia's major contribution to the palimpsests of place.

It could be claimed that peer-production moves us away from the epistemological assumption that representing place is an objective and scientific form of knowledge creation.[15] However, despite the openness of Wikipedia, there seems to be no evidence of a shift from connecting published representations about place with expectations of their factuality, truthfulness, and reliability. Indeed, the principle of Neutral Point Of View (NPOV) (one of Wikipedia's three core content policies) instructs all editors of the encyclopedia to engage in representation without bias, hardly a departure from the cartographic epistemologies of the pre-Web 2.0 era.[16]

As such, it is even more important to understand both what is represented and how places and attributes of place are made visible or invisible within Wikipedia. The encyclopedia has played a major role in allowing the production and representation of geography, along with expressions of the spirit of places (or *genius loci*), to move into the hands of the online masses. The genius loci of places have always been grounded in the local rather than global.[17] However, now that the palimpsests of places have virtual layers, those virtual representations can begin to influence our understandings of material, offline places – most importantly by influencing how geographic imaginations constitute and legitimate power relations.[18]

This chapter makes the argument that there are three core reasons why Wikipedia is not an unbiased floating layer of information. I argue that Wikipedia is characterized by *uneven geographies, uneven directions,* and *uneven politics* influencing the palimpsests of place. First, a database of all geotagged articles in the encyclopedia is examined in order to visualize distinct geographies of Wikipedia. Some parts of the world are characterized by highly dense virtual representations, while others have essentially become virtual *terra incognita*. Second, I look at the geographies of some of the language editions to explore the distinct directions in which information flows in the encyclopedia. Finally, through case studies, I highlight some of the politics and power relationships of representation within Wikipedia.

13. Three Wikipedia articles appeared second in the search results, and one (Suri) did not appear at all on the first page of results. This anomaly is likely due to the fact that the town of Suri shares a name with the child of celebrity actor Tom Cruise (a child that apparently garners a lot of attention on the Internet).
14. LeeAnn Prescott, 'Google Traffic To Wikipedia up 166% Year over Year', *Hitwise*, 2009, 2007.
15. J. B. Harley, 'Deconstructing the Map', *Cartographica* 26 (2) (1989): 1-20.
16. It should be pointed out that Wikipedia guidelines make no explicit claims to truth. The threshold for NPOV is instead that statements can be 'verified'.
17. Referring to the genius loci of places is not an attempt to imply that each place contains a floating or objective sense of place. Understandings of, and feelings about, places are always personal and individualised.
18. A similar argument is made by G. Rose, 'The Cultural Politics of Place: Local Representation and Oppositional Discourse in Two Films', *Transactions of the Institute of British Geographers* 19 (1994): 46-60.

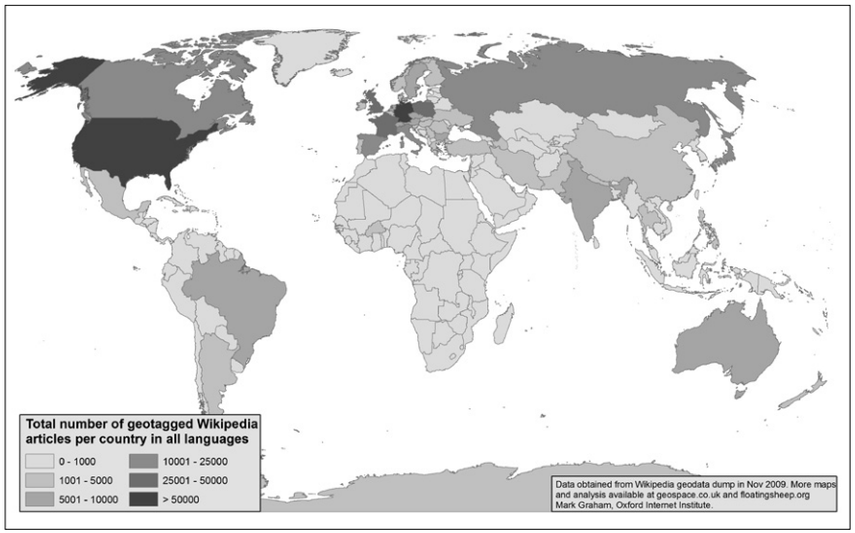

Figure 1: Total number of Wikipedia articles geotagged to each country.

Wikipedia in many ways represents a radically new way of creating, organizing, and distributing knowledge, and its power as a primary authority of global knowledge shapes a new peer-produced planetary consciousness. The three forms of unevenness that characterize the encyclopedia should be recognized not to discount Wikipedia as a valueless tool, but rather to contextual the knowledge obtained from it within the many uneven geographies of the material world, rather than the supposed omniscience of the peer-produced cloud.

Uneven Geographies of Wikipedia

'The world has literally been made, domesticated and ordered by drawing lines, distinctions, taxonomies and hierarchies: Europe and others, West and non-West, or people with history and people without history'. [19]

Much has been made recently about the claim that Wikipedia is at least as accurate (if not more so) than traditional expert-created media. An often-cited study in *Nature*, for instance, found a comparable number of inaccuracies in both *Encyclopaedia Britannica* and Wikipedia. [20] In discussing the reliability of peer-produced maps, Michael Goodchild similarly remarked that 'as far as we can tell so far, these new sources are as accurate as the traditional ones'. [21]

One way to examine such claims within the contexts of information about place in Wikipedia is to map geotagged articles. This was done in figures 1 to 3 with coordinates obtained from

19. Pickles, p.5.
20. Jim Giles, 'Internet Encyclopaedias Go Head to Head', *Nature* 438, 7070 (2005): 900-901.
21. Miguel Helft, 'Online Maps: Everyman Offers New Directions', *New York Times*, 16 November 2009, http://www.nytimes.com/2009/11/17/technology/internet/17maps.html?_r=1.

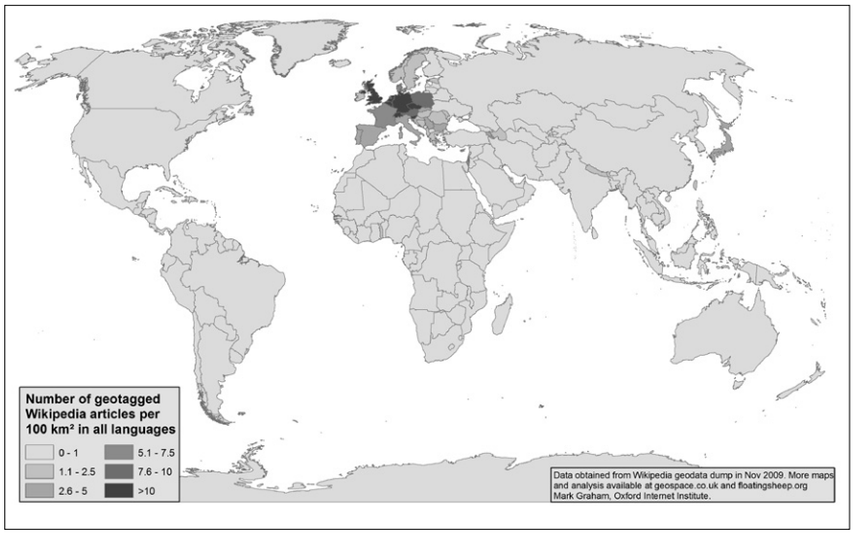

Figure 2: Total number of Wikipedia articles per 100km².

a Wikipedia geodata dump. [22] The information was then ported over to a Geographic Information System (GIS). At the time of collection, there were almost half a million geotagged Wikipedia articles (i.e., Wikipedia articles about a place or an event that occurred in a distinct place).

Figure 1 displays the total number of Wikipedia articles tagged to each country. The country with the most articles is the United States (almost 90,000 articles). Anguilla has the fewest number of geotagged articles (four), and indeed most small island nations and city-states have fewer than 100 articles. However, it is not just microstates that are characterized by extremely low levels of wiki representation. Almost all of Africa is poorly represented in Wikipedia. [23] Remarkably, there are more Wikipedia articles written about Antarctica than all but one of the 53 countries in Africa (or perhaps even more amazingly, there are more Wikipedia articles written about the fictional places of Middle Earth and Discworld than about many countries in Africa, the Americas, and Asia). When examining the data normalized by area (in Figure 2), an entirely different pattern is evident. Central and Western Europe, Japan and Israel have the most articles per landmass, while large countries, such as Russia and Canada, have low ratios of Wikipedia articles per area.

Finally, the data was also mapped out against population (see figure 3). Here countries with small populations and large landmasses rise to the top of the rankings. Canada, Australia,

22. Wikipedia contributors, 'Wikipedia:WikiProjekt_Georeferenzierung/Wikipedia-World/en', http://de.wikipedia.org/wiki/Wikipedia:WikiProjekt_Georeferenzierung/Wikipedia-World/en.
23. Similar findings were reported in Brent Hecht and Darren Gergle, 'Measuring Self-Focus Bias in Community-Maintained Knowledge Repositories', *C&T'09*, University Park, Pennsylvania, 2009.

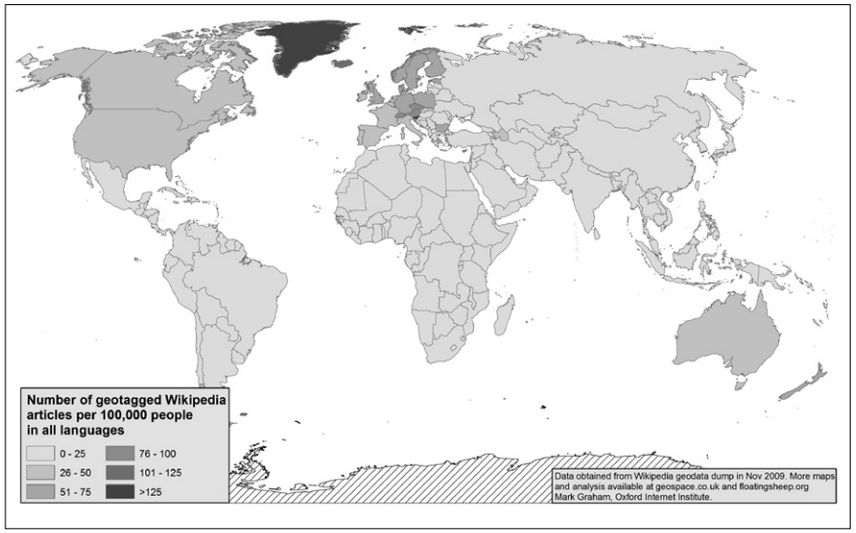

Figure 3: Total number of Wikipedia articles per 100,000 people.

and Greenland all have extremely high levels of articles per every 100,000 people. Smaller nations with many noteworthy features or events with spatial footprints also appear high in the rankings (e.g., Pitcairn or Iceland).

It should be pointed out that only a relatively small number of Wikipedia articles are geotagged, simply because much information does not have a spatial footprint. It wouldn't make sense to assign coordinates to the vast majority of articles on topics like apples or the 'Offside rule' in football. But of course, some explicitly spatial articles do remain untagged. The reason that Burkina Faso has more geotagged articles (1,071) than South Africa (945), Kenya (217), and the rest of Africa is probably diligent editing rather than the existence of more content in Burkina Faso. However, in all cases, these numbers pale in comparison to the huge number of articles in places like the United States (89,549) and Germany (54,634). So, it can be argued that (1) the geographic biases in tagged versus untagged articles are relatively insignificant, and (2) because those biases exist we should pay more attention to the general patterns of geographic inequalities in content (i.e., the fact that there is much more content in the Global North than the Global South) than to the relatively minor differences between places.

There have been reports in the media that Wikipedia contributors are running out of new topics to write about,[24] and some research shows that direct work on articles is decreasing while indirect work is increasing.[25] But figures prove that this is clearly not the case. A digital terra

24. Jenny Kleeman, 'Wikipedia falling victim to a war of words', *Guardian*, 26 November 2009, http://www.guardian.co.uk/technology/2009/nov/26/wikipedia-losing-disgruntled-editors.
25. For example, Aniket Kittur, Ed H. Chi, et al., 'What's in Wikipedia?: Mapping Topics and Conflict Using Socially Annotated Category Structure', *Proceedings of the 27th international conference on Human factors in computing systems*, Boston, MA: ACM, 2009.

incognita covers much of the world, meaning that Wikipedia offers a skewed view reproducing existing representational asymmetries. This observation is troubling for two reasons. First, unlike the clearly biased maps of colonial India and apartheid South Africa, representations in Wikipedia are generally trusted and assumed to be without significant or systematic bias. Second, although Wikipedia has been able to collect and network information in an unprecedented way, it hasn't proved as useful at conveying its lacunae in knowledge, i.e., the invisible spaces on the digital map.[26]

Uneven Directions of Wikipedia

The chapter has so far demonstrated that Wikipedia clearly has an uneven geography by analyzing information in all languages. In some ways this is a flawed method, because nobody can make use of information in all languages. The pages in Kiswahili are useless to a person who only speaks Czech; hence, the only direction that information in Kiswahili can take is towards speakers of that language. Wikipedia, therefore, is characterized by distinct directions in which information can be transmitted, making it important to look at geographies of information in specific Wikipedia languages. The histogram in figure 4 offers an interesting way to do this. The chart represents the number of articles in all 271 Wikipedia language versions, with each point on the X-axis representing a Wikipedia language version and the Y-axis representing the number of articles in that language version.

The chart follows a classic power law. The large spike at the left hand side of the graph is the English version with about three million articles. There are then about twenty language editions that contain a few hundred thousand articles. The rest of the graph is characterized by the amount of content dropping off sharply until the far right-hand side (representing the many Wikipedia language versions that only host a handful of articles).

Space constraints do not allow a full analysis of the linguistic directions of Wikipedia, but a map of the Portuguese language edition reveals insightful patterns. Articles in the Portuguese Wikipedia contain a large amount of information about Portugal and Brazil, a moderate amount about other lusophone countries, and very little about everywhere else (see figure 5). The Portuguese Wikipedia is not a small project: it is the ninth largest Wikipedia,

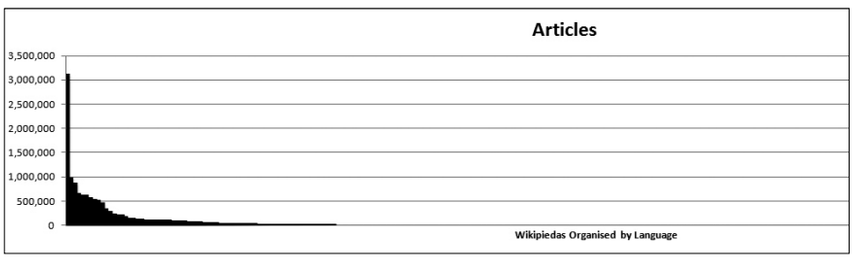

Figure 4: Number of articles in each language version.

26. David R. F. Taylor (ed.), *Cybercartography: Theory and Practice*, London, Elsevier, 2005.

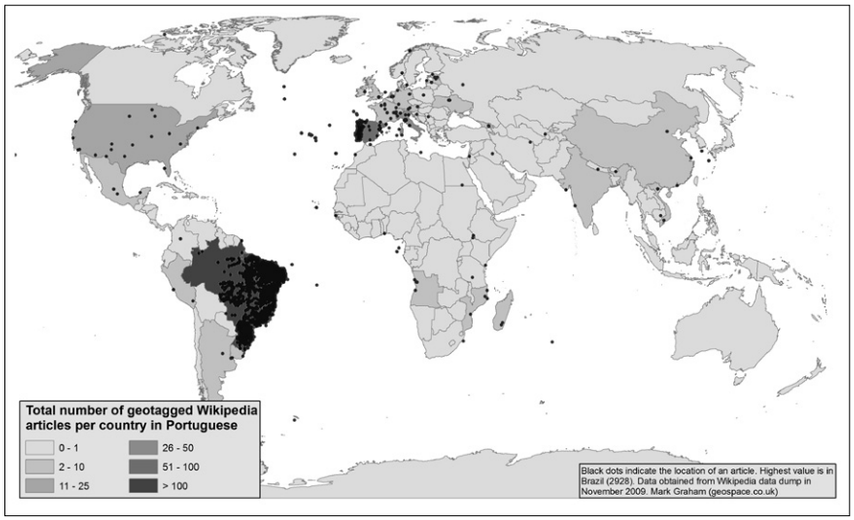

Figure 5: Total number of geotagged Wikipedia articles per country in Portuguese.

so one would expect a broader coverage of the world. But for Portuguese speaking users, there is a clear direction to the available information. Indeed, this same pattern in self-focus bias is observable in almost every Wikipedia language version (e.g., in the Czech Wikipedia, a majority of the geo-articles are tagged within the Czech Republic, and the same can be said for the Polish, Swedish, and many other versions). [27] These uneven directions factor into the palimpsests of place. For a user of one of the smaller Wikipedias, the virtual cloud of information is thick and dense over certain parts of the world but a faint wisp in most other places.

Uneven Voice in Wikipedia

The uneven directions of Wikipedia is not the only way in which place is unevenly represented and accessed within the encyclopedia. No comprehensive studies have been conducted on the demographics of Wikipedia authors, but research does indicate that editors are far from a representative demographic sample. [28] They are most likely to be male and generally younger and more educated. Furthermore a small fraction of editors (about ten percent) contribute the vast majority of content (about 90 percent). [29]

27. Hecht.
28. Noam Cohen. 'Wikipedia Looks Hard at Its Culture', *New York Times*, 2009.; R. Glott and R. Ghosh, 'Analysis of Wikipedia Survey Data', wikipediastudy.org, March 2010.
29. Felix Ortega, Jesus Gonzalez-Barahona, et. al., 'On the Inequality of Contributions to Wikipedia', Hawaii International Conference on System Sciences, Hawaii, 2008.; Katherine Panciera, Aaaron Halfaker, et. al., 'Wikipedians are born, not made: a study of power editors on Wikipedia', Proceedings of the ACM 2009 International Conference on Supporting Group Work, Sanibel Island, Florida, ACM, 2009.

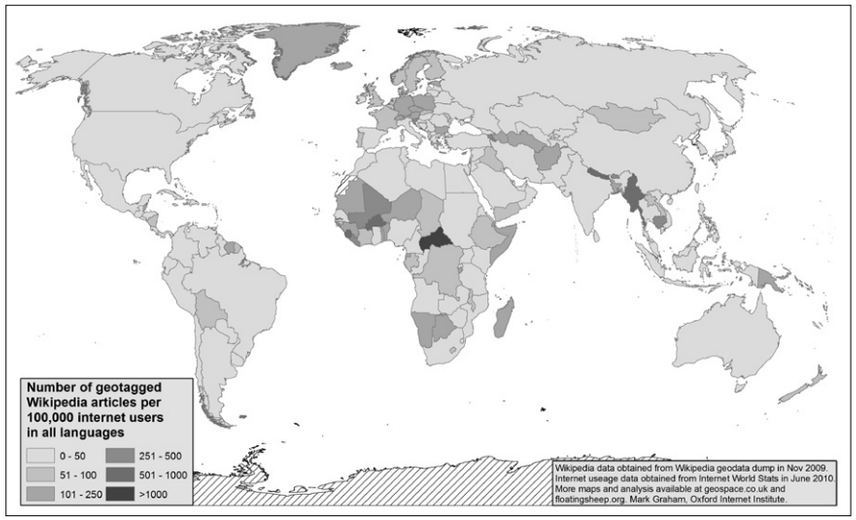

Figure 6: Number of geotagged Wikipedia articles per 100,000 internet users.

The geography of authorship is also reportedly highly uneven, thus allowing for voices and opinions from certain parts of the world to be disproportionately visible. Again, while there are no comprehensive studies in this area, figure 6 indicates that at least some parts of the world have a large number of representations written by non-locals.

The map displays the number of geotagged Wikipedia articles in each country normalized by the number of internet users. Interestingly, it presents patterns that are significantly different from those in figure 3 (total number of Wikipedia articles per 100,000 people). Figure 3 highlights parts of the world traditionally associated with dominance in the global information economy. Yet when the total number of articles in each country is normalized by the number of internet users (as in figure 6), many countries in Africa and Asia not generally associated with high levels of digital engagement stand out.

The countries with the highest number of articles per 100,000 internet users are Nauru (4,667), the Central African Republic (1,253), and Myanmar (824). In fact most of the places that score highly by this measure, like Nauru, the Central African Republic, and Myanmar, have extremely low levels of internet use per capita. In contrast, countries with higher level of per-capita internet usage tend to have far lower rates of Wikipedia articles per internet user (e.g., the United Kingdom (70) and France (67)). While it is entirely possible that high article/user ratios is an indication of dedicated Wikipedia editors in those countries, it seems instead more likely that places like Myanmar, the Central African Republic, and most other nations with low levels of internet penetration are being represented by editors outside their borders.

Future research will need to address the degree to which some parts of the world are represented by non-local editors. However, it is important to point out that, even on a micro-scale, voice and representation are highly uneven. Because representations shape how we interpret

and interact with the world, it could be assumed that intense debates on Wikipedia revolve around crucial intersections between representation and identity. Yet interestingly, many debates on Wikipedia concern relatively benign and insignificant knowledge. For instance, in the article about Altrincham,[30] a English town of 40,000 people close to Manchester, an intense multi-page, multi-year argument has been taking place over how prominently the article should mention the county (Cheshire) that it falls within. Like many articles, Altrincham has a much larger discussion page than article page, but the fact is that the hundreds of hours of labor spent debating the precise ways in which Altrincham residents refer to either Cheshire or Greater Manchester could convince outside observers that the article is a relatively refined, finished product. Yet the article is clearly written from a very particular perspective of the town, focusing on the middle-class amenities that the town offers and in multiple places mentioning that Altrincham is the Manchester 'stockbroker belt', home to millionaire footballers at the two large Manchester clubs. Much of 'everyday' Altrincham is omitted from the description. The section on sports is four times as long as the section on cultural venues and events, and both sections command more space than references to the main shopping street, which is by far the busiest part of Altrincham on any day of the week.

Another example can be seen in the religion section of the article. Significant space is devoted to a discussion of the history and geography of the churches in the city, but no mention is made of the Altrincham mosque. This focus on Altrincham is not in any way intended as a criticism of the particular editors involved but simply a recognition of how Wikipedia can give visibility to some representations voiced by a few editors while leaving many aspects of place invisible and undefined in its virtual layers.

Even though Wikipedia potentially allows anyone to contribute, there can only be one representation of any given feature or event present at any one time on its site. Disagreement and debate is therefore a necessary feature of the project, and in those debates some voices are louder and more likely to frame representations than others[31] (e.g., female contributors are often ignored, trivialized, or criticized by their male counterparts).[32] Maps and measurements of the uneven density of representation expose only one of many uneven dimensions within the palimpsests of place on Wikipedia.

Conclusions

This chapter demonstrates that some of the debates around the politics of Wikipedia need to be reframed. Academic and popular discussion about Wikipedia often revolves around

30. I choose to focus on Altrincham due to the fact that I am a former resident of the town.
31. Interestingly, initial data suggests that articles about place are characterized by far lower levels of conflict than other categories of articles (e.g., religion or philosophy). See Aniket Kittur, Bongwon Suh, et. al., 'He says, she says: conflict and coordination in Wikipedia', Proceedings of the SIGCHI conference on Human factors in computing systems, San Jose, California, USA, ACM. 2007.
32. Janet Morahan-Martin, 'The Gender Gap in Internet Use: Why Men Use the Internet More Than Women – A Literature Review', *CyberPsychology & Behavior* 1(1) (1998): 3-10; Matheiu O'Neil; *Cyber Chiefs: Autonomy and Authority in Online Tribes*, London, Pluto Press, 2009.

examining bias in content that already exists. The English version of Wikipedia is also often presented as having exhausted all potential topics. However, this chapter has argued that greater focus is needed on the information and voices that are simply omitted.

The Wikipedia project has had unimaginable success in making freely provided information available to potentially anyone. However, the project is less successful in showing users where the gaps in representation lie. Part of this problem can be traced to the wording of Wikipedia's Neutral Point of View (NPOV) policy. The policy advises editors to 'assert facts, including facts about opinions – but do not assert the opinions themselves'. While this rule may function as an effective policy for many articles (e.g., fish anatomy, coliform bacteria, or Manchester City Football Club), it does not necessary work for articles about place. The countless ways of interpreting economic, social and political landscapes mean that articles that contribute to the palimpsests of place necessarily must only represent selective aspects of place in selective ways.

The debates and edit wars that unfold over the representation of highly contested places are undoubtedly important (e.g. the articles about Palestine or Londonderry), but representations of places like Altrincham that are not subject to a vortex of comment and a glare of attention can have the most unconsidered and unaddressed bias. Furthermore, while it is important to focus on the power relationships embedded in representations of place, it is important not to lose sight of the fact that much of the world still isn't represented. Some places simply have nothing written about them or are only accessible to people with certain positionalities (for example, speaking the language in which the article is written), or their written attributes of place can still stay cloaked and invisible in the virtual palimpsests. Omissions and absences in virtual representations should be more centrally positioned within discussions of digital divides. While previous work has demonstrated that divides emerge due to disconnects between people, technologies, and information,[33] it is clear that digital divides are more than just an issue of access.[34] Attention needs to be paid to other factors excluding people and places from digital palimpsests.

Wikipedia articles and the material places and events they represent will always necessarily be in a state of becoming. Therefore, to address the multiple dimensions of unevenness within Wikipedia, we need to be as aware of what is not represented as what is. Better guidelines for including and excluding place and more transparent methods for revealing uneven layers of focus could address these issues. In other words, despite claims that we are running out of topics and that Wikipedia provides a blanket layer of information covering the planet, we should rather be aware of how power relationships and divides in the offline world can serve to exclude certain types of knowledge online. These absences within the digital palimpsests

33. Some relevant examples are: Lisa Servon, '*Bridging the Digital Divide: Technology, Community, and Public Policy',* Malden, MA: Blackwell, 2002; and Avi Goldfarb and Jeffrey Prince, 'Internet adoption and usage patterns are different: Implications for the digital divide', *Information Economics and Policy* 20 (1) (2008): 2-15.
34. Mark Graham, 'Time Machines and Virtual Portals: The Spatialities of the Digital Divide', *Progress in Development Studies,* 2011. In press.

of place are crucial as they shape our interpretation the world and thus ultimately influence how we interact with it.

It is conceivable that not only are many being left out of the palimpsests of place but that, in the words of Gayatri Spivak, the subaltern may not even have a voice in the representations that do exist. [35] All knowledge is constituted in relation to omissions, absences, and asymmetries, and within Wikipedia there are inevitably places lacking representation and people lacking voice. Most worrisome, Western dominance of representation and voice is likely produced and reproduced in myriad sociospatial practices around the world. [36] As such, we need to continue to expose unevenness in both voice and representation.

There is enormous potential for Wikipedia to open participation in knowledge construction and loosen the West's entrenched grip on globally accessible representations. The platform, available in 271 languages, in theory allows marginalized groups to be heard around the world. However, it is important not to overstate how Wikipedia has democratized digital representation and always to be aware of its uneven geographies, directions, and politics when integrating it into palimpsests of place.

35. Gayatri. C. Spivak, 'Can the Subaltern Speak?', in *Marxism and the Interpretation of Culture*. Eds. C. Nelson and L. Grossberg, Urbana, IL: University of Illinois Press, 1998, pp. 271-313.
36. Stuart Hall, 'The West and the Rest: Discourse and Power', in T. Das Gupta, C. E. James, R. C. A. Maaka, G. Galabuzi, and C. Andersen *(eds) Race and Racialization: Essential Readings*, Toronto: Canadian Scholars Press, 2007, pp. 56-60.

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WIKIPEDIA IN INDIA
PAST, PRESENT, FUTURE

GAUTAM JOHN

Wikipedia turned 10 on 15 January 2011, and its history is both well known and fairly well documented. Globally, Wikipedia is the fifth most popular website, with the English Wikipedia being the most popular destination. What is far more interesting to note, however, is that close to 98 percent of the traffic from India was on the English language Wikipedia, with the remainder traveling to an Indic language Wikipedia. This fact raises a question of interest – what is the history of Wikipedia in India?

Wikipedia is popular in India. Current data shows that it is the seventh most popular site in the country and comes out ahead of many popular sites including Twitter and Orkut. While it is well nigh impossible to pinpoint the first edit or the first person who read or edited Wikipedia in India, it is possible to use proxies for this investigation.

The article on India on English Wikipedia was first created on 26 October 2001 and languished for many years – between 2001 and 2003, it saw only 199 edits. 2004 saw 1,700 edits to the page, 2005 had 2,311 edits, and contributions peaked in 2006 with 6,752 edits. Since 2007, the number of edits has steadily dropped, and in the period between 2007 and 2011 there was a total of 6,925 edits. The page is watched by 2,329 people who maintain a constant vigil over changes made, and it was viewed 1,313,608 times in December 2010, as well as being the 39th most viewed page on the English Wikipedia. The India page is now available in 216 languages, has been a featured article in nine languages, and is linked to from more than 1,500 other pages. A reasonable inference to make is that interest in Wikipedia in India broadly corresponded with the timeline for the evolution of the India page, and Wikipedia is now available in over 20 Indian languages with a further 20 Indic languages in incubation.

However, India and Indian language Wikipedias seem woefully underrepresented when one compares the size of the pool of native language speakers with the number of articles on each respective language Wikipedia. Further, it is worth noting that the Wikipedia community in India is necessarily very different from similar communities across the world because of the diverse languages that are a part of the Indian identity. In terms of size, Hindi is the largest Indian language Wikipedia, with around 67,221 articles. Telugu, Marathi, Bishnupriya Manipuri, and Tamil are the next largest Indian languages Wikipedias, though none of them have more than 100,000 articles. The first Hindi article was begun in July 2003, and the Hindi Wikipedia crossed 1000 articles in September 2005. The first Telugu article was begun in December 2003, its language Wikipedia exceeding 1,000 Marathi articles in October 2005; Marathi's first article appeared in May 2003, and the site exceeded 1,000 articles in May 2005; the first Bishnupriya Manipuri article was published in August 2006

and exceeded 1,000 articles in November 2006; and the first Tamil article appeared in September 2003, exceeding 1,000 articles in August 2005. However, Oriya, Punjabi, Assamese, and Malayalam were the first Indian language Wikipedias, all having started in 2002.

Writing in the September 2010 edition of the Wikimedia India Newsletter, Shiju Alex and Achal Prabhala opine that:

> Indians working on English Wikipedia form perhaps the most active Wikimedia community in the country. This might be surprising for many people outside India, but within, it is fairly obvious that English is an important Indian language (it is one of India's 'official' languages) and also the most significant bridging language between different language groups. Indeed, English is the language that connects Wikimedians from various language groups in India. What we call the 'mother tongue' (i.e., the native Indian language of one's parents) is usually not English, and yet for a number of people, English remains the preferred operating language in educational, professional and online life. [1]

Given the varied language communities in India, it is worth noting that several language communities have been very active and have been a primary factor in driving editorship in their respective languages. Common to all these language communities are outreach activities, with a growing number of regular meet-ups across the country (Bangalore has had 23 consecutive community meet-ups since July 2009 with one being held every month.), Wiki Academies (hands on tutorial sessions on how to edit Wikipedia), and other such outreach processes that are very important for evangelizing Wikipedia projects and bringing new editors in to the fold.

In parallel, there has slowly been traction from governments as well. The Malayalam Wikipedia community recently released an offline version of Malayalam Wikipedia containing 500 selected articles, and the Kerala government distributed it to thousands of schools in the state. The Tamil Nadu government recently released a glossary of thousands of technical terms that were collected by the Tamil Virtual University for use in the Tamil Wiktionary project and also organized an article competition across the state covering more than 3,000 universities and colleges, an effort that has introduced Wikipedia to a very large new audience and brought new editors into the fold.

It is also worth noting that the National Knowledge Commission recognized the importance of free, easy, and open access to knowledge when it wrote in its recommendations on Open Educational Resources that, 'Our success in the knowledge economy hinges to a large extent on upgrading the quality of, and enhancing the access to, education. One of the most effective ways of achieving this would be to stimulate the development and dissemination of quality Open Access (OA) materials and Open Educational Resources (OER) through broadband internet connectivity. This would facilitate easy and widespread access to high quality

1. Shiju Alex and Achal Prabhala, 'The Wikimedia India Community: Where We Are Now', in Wikimedia India Community Newsletter, September 2010, p. 5, http://en.wikipedia.org/wiki/File:Wikimedia_India_Community_Newsletter_2010_September.pdf.

educational resources and drastically improve the teaching paradigm for all our students'. [2] This is important because Wikipedia and its sister projects are some of the largest repositories of Open Educational Resources in the world.

In a case study on the history of the Tamil Wikipedia L. Bala Sundara Raman traces the history of the Tamil Wikipedia:

> Tamil Wikipedia was started on September 30, 2003 by an anonymous person by posting a link to their Yahoo! Group and the text *manitha maembaadu*, fittingly, a phrase that means human development, on the main page. However, for several weeks after that, the site had an all-English interface with little activity. Mayooranathan, in response to a request posted in a mailing list, completed 95% of the localisation between November 4, 2003 and November 22, 2003. He made some anonymous edits alongside.
>
> On November 12, 2003 Amala Singh from the United Kingdom wrote the first article in Tamil, but with an English title Shirin Ebadi. The earliest editor who continues to edit actively, Mayooranathan, has written more than 2760 articles and has kept the project alive during an intervening period when practically nobody else was editing. Around five active editors including the author joined the project in the second half of 2004.
>
> Some occasional editors turned out to become regular editors and the Wiki started growing steadily. Bugs were reported to fix the interface, policies partially deriving from the English Wikipedia were initiated, and editors started to specialise in tasks like stub sorting, creating templates, copyediting, wikifying, translation, original writing etc. Even at this early stage, the Tamil Wikipedia had a global editorial team representing almost every continent.
>
> After registering a period of high linear growth in several metrics on a lower base, the Tamil Wikipedia started witnessing, around April 2007, a low linear growth on a higher base in several quantitative metrics. This period, however, also showed a perceivably super-linear growth in article quality aspects like length, standard of prose, image use, inline citation usage, etc. Late 2008 to early 2009 was a period characterised by a near constant number of active and very active editors, a steady influx of new and occasional editors, a healthy, enthusiastic and continuity-preserving churn, and, above all, optimism for a promising future. [3]

There have also been some technical challenges around the historical lack of growth in Indic language Wikipedias, in particular in the area of openly licensed and freely available Indic fonts, difficulties with the cross-platform display of Indic text, and the lack of standardized

2. Online at the National Knowledge Commission website, Recommendations – Open Educational Resources, http://www.knowledgecommission.gov.in/recommendations/oer.asp.
3. The case study on the Tamil Wikipedia can be read in its entirety here: http://ta.wikipedia.org/wiki/%E0%AE%B5%E0%AE%BF%E0%AE%95%E0%AF%8D%E0%AE%95%E0%AE%BF%E0%AE%AA%E0%AF%8D%E0%AE%AA%E0%AF%80%E0%AE%9F%E0%AE%BF%E0%AE%AF%E0%AE%BE:Tamil_Wikipedia:_A_Case_Study.

cross platform Indic language text entry tools. There have been and continue to be many approaches to working on these problems – it is a focus of the Wikimedia Foundation, language communities, and private organizations. Google and Microsoft have both released tools to help solve these challenges and assist in translation efforts.

This inequitable distribution of content, skewed towards English and languages of the traditional geographies of the global north, has been a frequent point of discussion for the Wikimedia Foundation. Among other things, the Foundation's strategy aims to foster the growth of smaller Wikipedias – by 2015, the aim is to have 100 Wikipedia language versions with more than a 120,000 'significant articles' each. To this end, the foundation also aims to bootstrap community programs in key geographies: India, Brazil, the Middle East/North Africa. In particular, Achal Prabhala, a member of the Wikimedia Advisory Board, has spoken about the need for local representative bodies of the Wikimedia projects, or chapters, in countries that are linguistically underrepresented. He argues that that there is a distinct relationship between local growth and the existence of local chapters and that geographies in the south present an enormous opportunity for growth.

Wikimedia Foundation's India Chapter has had a long history. First efforts to set up a Chapter began in September 2004 with an internet relay chat meeting, and efforts continued through to November 2007 when there was another round of discussions on the India mailing list and draft bylaws were drawn up. However, the efforts to set up an India chapter received a huge boost with two things: Sue Gardner and Jimmy Wales visiting Bangalore in December 2008 and regular Wiki-meetups in Bangalore that were made possible by the Centre for Internet and Society. In July 2009, renewed discussions and activity commenced in connection with the setting up of the India chapter, and this culminated with India becoming the 29th chapter of the Wikimedia Foundation in July 2010. The Wikimedia India Chapter was granted registration (registered name: Wikimedia Chapter) by the Registrar of Societies, Bangalore Urban District on 3 January 2011.

The chapter's fundamental mission is to catalyze the usage and editorship of Wikipedia in India, as well as foster Indic language content. To this end, there are multiple tracks the chapter will need to take – content, technology, outreach, collaborations, offline work, creating special interest groups and projects.

The Wikimedia Foundation, recognizing the importance of India to its growth strategy and understanding the potential in this relatively underrepresented and untapped market, recently appointed Bishakha Datta as a member of its board of trustees and announced that it will soon open its first office outside of the United States in India. As a testament to the growing popularity of Wikipedia in India, 15 January 2011 saw more than 90 concurrent events celebrating the 10th anniversary of Wikipedia across India, many of them being organized spontaneously by small groups of interested community volunteers, with large local participation and substantial media coverage.

Aside from the organic growth of Wikipedia and local language communities, the development of Wikipeda in India would appear to be only just entering its active growth phase. With

the continued growth of the Indian economy, the expected growth of Indian internet users, the advent of cheap and ubiquitous wireless internet access, an active chapter, a foundation office in India, and the support of India's relatively free media, the future of Wikipedia in India looks bright and well set for the decade ahead.

(The author would like to thank the team that put together the Wikimedia India Community Newsletter in September 2010, which is available here: http://commons.wikimedia.org/wiki/File:Wikimedia_India_Community_Newsletter_2010_September.pdf. This is the best overview of the state of Wikimedia and Wikipedia projects in India and is well worth reading. This current piece would not have been possible without this newsletter.)

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USER DRORK: A CALL FOR A FREE CONTENT ALTERNATIVE FOR SOURCES
AN INTERVIEW WITH DROR KAMIR

DROR KAMIR AND **JOHANNA NIESYTO**

Dror Kamir, whose user name in Wikipedia is DrorK, works mainly in the fields of natural language processing and translation. He became active in the Hebrew Wikipedia in April 2005, and then in the Arabic and English Wikipedias but is currently on a long 'Wiki vacation' from all three. He is instead focusing on promoting free-content policy in Israel as a board member of Wikimedia Israel, of which he was one of the founders, and as a volunteer of the Wikimedia Foundation. In Wikimania 2008 in Alexandria, Egypt, he delivered the presentation 'Cross-Cultural Dialog through Wikipedia'.

Johanna Niesyto (JN): When and how have you become involved in Wikipedia?

Drork (Dror Kamir / DK): Being a linguist, I used to work in a high-tech company that dealt with natural language processing. Generally speaking, this is the field that caters for improving search engines, creating machine translation software, etc. I found myself landing on Wikipedia pages more and more often. That was in 2002 when Wikipedia was about one year old. At that time, Wikipedia was beyond its infancy but still not so developed. The information it held grew rapidly, and so it became increasingly useful for me. It combined the traditional well-organized methods of presenting data with contents that reflected the actual interest of people and their actual use of language. It took my colleagues and me a while before we understood the concept of Wikipedia and how it works, and yet, at that time, innovations related to computers and the internet were our bread and butter, so it was not too long before I realized that there was a different concept behind this encyclopedia. At that point I realized I could edit the content, but nevertheless, it took some more time until I made my first edit.

JN: What have your edits been about since then?

DK: I tried to edit articles on subjects I thought I had some knowledge about. These were mainly articles about linguistics and some articles about history or politics. Most of my early edits were in Hebrew. My initial interest was mainly in the Hebrew Wikipedia. I reckoned there were masses of people trying to edit the English Wikipedia, whereas the Hebrew Wikipedia was where I could make more impact, as I gathered it probably needed more editors, due to its natural disadvantage of having relatively few fluent speakers. So, I started by making some edits on the Hebrew Wikipedia, but they were reverted on the pretext that they were too sweeping and had overridden too much of the information previously introduced by other editors. Then I learned to make my edits more subtle, to measure the amount of change that I wanted to make more accurately. A few months after I started editing on the Hebrew Wikipedia, I took a look at the Arabic-language Wikipedia. It was a bit like sneaking into the

neighbor's backyard. To be honest, I expected a lot of political propaganda. I suppose I was prejudiced about the manner of writing in the Arab world. What I saw at first was better than I expected. I read the article about Israel, and I did not see political propaganda, not at first. Later on, I became engaged in conflicts about the content of articles on both the Hebrew and the Arabic Wikipedias.

JN: What kind of issues have you been 'fighting' about?

DK: Well, Israeli history is a delicate subject in particular, especially as there have recently been waves of revisions in this field followed by backlashes. I think we are currently amid one of these backlashes. One way or another, dealing with Israeli history and related topics is stepping on shaky ground. I made my first edits on Wikipedia at a time when not only intellectual debates, but also actual events in Israel and its vicinity were reaching a boiling point. There were harsh outbursts of violence outdoors and retrospective reviews of Israeli history in books, magazines, and university classes. I thought certain articles on the Hebrew Wikipedia were too conservative in their approach. I thought neutrality would be better served if more room was given to the revisionist views, but I felt strong objection from more 'veteran' editors. Looking back, I am not sure whether they objected to the content I wanted to introduce, or perhaps I carelessly stepped on other editors' toes, being too pushy. Later on, I managed to better map the population of editors. I found people who adhered to revisionist approaches more than I did, and others who were very conservative when it came to historical issues. When I started to edit in Arabic, I felt I was thrown to the 'conservative position', as I had to convince people that they could not refrain from mentioning Israel by its name. Maybe it is not a conservative position after all, because it is a fundamental issue, which is naturally important to me as an Israeli. But it also has to do with basic rules of conveying information. Arab editors argued that in certain circumstances they would not mention Israel by its name, but rather write 'Palestine' or the 'Zionist Entity' or various other terms used in the Arab world when trying to avoid recognition in the state of Israel. I argued that this was not acceptable per the Neutral Point of View (NPOV) principle. This debate was harder than trying to introduce some revisionist views to the Hebrew Wikipedia. First of all, I was considered a guest on the Arabic Wikipedia, as I am not Arab; moreover, I'm an Israeli. Secondly, this is indeed a fundamental issue that has to do with 'quasi-axioms' that underlie certain people's view of the world.

JN: The German-language Wikipedia user Fossa criticized the German-language Wikipedia heavily. One of the solutions he brought up was that users should publish their social networks on their user sites, so that users know to whom – and to which group – they are talking. What do you think of this idea with regard to the political conflicts you just described?

DK: He makes a very good point in this suggestion, and I think it relates to the whole issue of anonymity on Wikipedia. Wikipedia has love-and-hate relations with the concept of anonymity or virtual identities, which is so common on the internet. On the one hand, there is a lot of suspiciousness toward unregistered contributors and a strict ban on 'sock puppets' (one person who opens several accounts in order to use alternative identities on Wikipedia). On the other hand, when someone opens an account on Wikipedia, he can construct a whole

new character for himself. No one would know his origins, affiliations, expertise, and interests unless he decided to reveal them and only to the extent he chooses. A Wikipedian can also choose whether to use one account for all Wikipedias or different identities for each language in which he or she wants to contribute. Paradoxically, an unregistered contributor is often less anonymous than a registered one, because the IP is used instead of a nickname for such contributors; a lot of information can be inferred from the IP address.

The anonymity dilemma has become crucial when administrators started to act like policemen and judges. I was involved in a few quasi-judicial discussions on the English Wikipedia and felt as if I entered a scene of the British TV series *The Prisone*r. It was exactly like that village in which everything seems real but actually isn't, and there is an administrator that acts as 'Number 2'.

The main difference is the transparency to which Wikipedia adheres. In principle, everyone can see any discussion on Wikipedia. However, as Ayelet Oz showed in her talk at Wikimania 2009 about 'Wikipedia as a System for Acoustic Separation', this transparency is heavily impaired by the flood of information that Wikipedia provides and by the division of this information into various pages and subpages. When I recently tried to understand the rules that govern the debates on Wikipedia, I was overwhelmed by the huge amount of long pages. Some of them are 'official policy', some of them are 'essays', and some merely analyses or proposals. There is a lot of internal jargon used on these pages and particularly in debates. It is nearly impossible to get the hang of all this written material.

That brings me back to Fossa's idea. It is basically good, particularly in the case of administrators, but wouldn't it become just another load of information listed somewhere, hard to locate, and hardly understood as it includes strange nicknames of unidentified people? A better solution might be to automatically map relations among editors and administrators according to personal talk pages or editing patterns. There is already a tool called Wikistalk that offers something similar to that, and yet I didn't find much use of it. As for interpersonal relations, Wikipedia started with a few rules and two major principles, namely Assume Good Faith and Ignore All Rules. The idea was to avoid too much formality, bureaucracy, and regulation, while encouraging openness and cooperation as much as possible. Maybe the right way is not to ask people to list their relations and interests, but to put the 'blocking' guns down, relax the over-nervous administrators, let people have edit wars until they get tired, and agree to think of a consensual version. Let people be rude to each other without sending an administrator as Mother Superior to punish the sinners. Maybe we need to apply Ignore All Rules more often.

JN: You reflected already on your experiences on the Hebrew and Arabic Wikipedia. How have you been using the English Wikipedia?

DK: My edits on the English Wikipedia were quite minor, at least at the early stages of my activity. I did not feel I could contribute much to the English Wikipedia because, as I said, there were already many people, among them native English-speaking Israelis and Jews who contributed regularly to the English version. I contributed quite a lot to the Hebrew and Arabic Wikipedias and became quite involved in the community of editors of both of them.

JN: I found out that your user page on the English Wikipedia has been deleted. One of the arguments you've been giving is 'I believe Wikipedia has turned into a political forum'.

DK: I still stand behind this statement. I think it is a problem that should be addressed. I used to think the English Wikipedia worked much better than the Hebrew or Arabic Wikipedias, but at some point I had, once again, this feeling of working like a diplomat or a lawyer rather than as an encyclopedia editor. I am not a diplomat nor a lawyer, and I lost my patience eventually.

JN: Why are you on a 'Wikivacation'? Is it a definite decision to quit Wikipedia?

DK: I am drawn to Wikipedia like a moth to candlelight. Whenever I feel I have had enough, I am somehow drawn back to it. I suppose I truly believe in the underlying concept of this project, and I also acknowledge its importance in creating the new universal basis of knowledge. The latter is, in fact, a double-edged sword. The fact that Wikipedia is unprecedentedly accessible and comprehensive, combined with the fact that there are only a few limitations on its distribution, hold the potential of it becoming an oracle that tells people what to think. Not explicitly, of course, but rather by speedy dissemination of certain versions of information to a huge number of people with very limited options to withdraw problematic versions and too few alternative sources that can provide another angle with similar efficiency. Maybe helping to create such a free content alternative is something I should consider, but currently it is beyond my abilities. Anyway, as long as I can do something to keep Wikipedia on the right track and prevent possible negative ramifications, I want to be there.

That said, I do take long leaves, usually after 'slamming the door' in frustration. Most of my leaves, including the recent one, came when I was worn out by the debates, especially when I felt they were becoming more and more political or ego-motivated, rather than real give-and-takes about how to make the content more insightful. I suppose I cannot absolve myself of responsibility. In many cases I probably also drifted on this wave of having debates for the sake of debating.

As for the Arabic Wikipedia, I stopped editing there during the crisis in Gaza in December 2008, when I saw that some Arab editors initiated an article in Arabic about it called 'The Massacre of Gaza'. The name of the article was changed later on, but I still felt it was a bit too much, especially as I saw more and more attempts to initiate articles about the Israeli-Palestinian conflict with the word 'massacre' in their title. There was also an incident in which a Palestinian editor insisted on making edits to the article about the geographical region called Palestine, according to which the Hebrew language 'infiltrated' Palestine during the 19th century. I brought him an abundance of evidence that the Hebrew language was spoken in this region long before the Common Era, but he insisted on editing the article in a way that would portray Jews as foreigners or 'newcomers' to the region.

On the Hebrew Wikipedia there were several incidents that made me quit writing there. There are two that I remember well. One of them involved the use of the word 'terror'. I argued that this term should be avoided or properly attributed, namely 'it is terror according to so-and-so'. There is simply no accepted definition of when violence turns into terror. You cannot even

apply here the criterion of 'I know it when I see it', which the American judge Potter Steward set for pornography in 1964, because in each case of alleged terror, everybody sees something different, usually based on prejudices. When this debate about using the term 'terror' heated up, I saw one of the most influential veteran editors on the Hebrew Wikipedia stating on his user page, referring to a certain anti-Israeli organization, 'Certain truths must be told, this is a terrorist organization'. Then I realized that something had gone wrong. Are we trying to convey information or to preach?

JN: What about the English Wikipedia edit wars? Have they been similar or different to your experiences in the Hebrew and Arabic Wikipedia?

DK: As I said, at first I felt things were going on much better on the English Wikipedia, but I changed my mind later on. I remember several experiences on the English Wikipedia that were quite similar to the ones I have just described. I remember a debate about Gilad Schalit, the Israeli soldier who was kidnapped in Gaza. Some users suggested he should be defined as a hostage, and I supported that. I said the facts on the ground suggested that he was a hostage. Other people said that for the sake of neutrality we should refer to him as 'captive'. In this specific case, I might not have been totally honest. I do believe 'hostage' is the proper term to describe his condition, but I cannot say I am unprejudiced about this issue. I do not have any personal relation to Gilad Schalit or his family, but I have strong feelings about this case. One way or another, the debate did not seem so harsh or essential to me at the time. After all, writing 'captive' instead of 'hostage' did not make that much of a difference as far as the Wikipedia article was concerned. Then again, looking back at this case, I could have seen here the first seeds of the phenomenon that would later become unbearable for me. For example, people brought as references journalistic articles about Gilad Schalit that used the term 'hostage' in order to prove it was legitimate. This is a bit odd, because using sources does not solve the problem at hand. It would be wise to consult relevant sources in order to establish facts, like the Earth orbits around the Sun and not the other way around. But here, the facts are not questionable; it is more about moral judgment of these unquestionable facts. I am not sure whether Wikipedia should or can avoid moral judgments in all cases, but moral judgments are always hard to handle and relying on sources is hardly a useful tool to address this problem. It is reasonable to consult an astronomer about whether the Earth orbits the Sun or vice versa, but what kind of source should I consult when it comes to terminology that implies moral judgment? A reverend? A rabbi? A qadi? A philosopher? Should I rely on legal definitions? If so, which legal system should I use? Saying 'captive' instead of 'hostage' could be problematic when moral judgment is an essential part of the case we want to describe. After all, we treat murder cases differently than we treat accidents. If we take for example the tragic fate of Alan Turing, there is a strong moral aspect to this story, and you cannot avoid it, even when you try to be neutral. A cold factual account of the events that led Turing to kill himself would be insufficient and maybe even misleading. Then again, I do not see how using references solves the problem of whether to use 'hostage' or 'captive' or, generally speaking, whether to introduce a moral aspect to the article and how to do it. Maybe this is the point where an editor-in-chief is needed to set a policy.

Another interesting political incident I was engaged in happened not on the English Wikipedia but, on Wikimedia Commons. At the beginning, Wikimedia Commons was not supposed

to be an encyclopedia, but rather a repository of files, particularly images. In practice, it turned into a visual encyclopedia in its own right. A lot of policy issues that had been discussed on the various Wikipedias were not addressed on the Commons, because people treated it as a kind of service to the other projects. In fact, such issues pop up in the least expected places. File names, for examples, are actually texts. A contributor describes his image in the file's name and sometimes, deliberately or unaware, introduces his point of view through this 'back door'. There was a contributor who named a picture of Tel Aviv 'Tel Aviv occupied Palestine'.

JN: Do you think that Wikimedia Commons should also follow the NPOV principle?

DK: Yes, definitely. The method of keeping impartiality must be different because the nature of content is different, but I believe Commons should adhere to the NPOV principle like any other Wikimedia project. First of all, any text written by the editors should be consistent with NPOV. This includes file names, names of categories, description of images, etc. As for the core content, I saw many political caricatures on Commons; some of them express highly contentious views, and some of them in very bad taste. The publication of these caricatures is certainly legitimate and in line with the freedom of speech, but for that end there are already plenty of blogs and forums. I am not sure a Wikimedia project should be the billboard for such materials just because they are distributed under free license. Even when such material should indeed be available on Commons, for example, when it is an indication of a certain zeitgeist or important for understanding a certain event, it should be presented in an NPOV way. I saw a derogatory caricature against a known figure that was categorized under his name along with genuine portraits of him. Since every category on Commons turns automatically into a gallery, this person's images were displayed side-by-side with the derogatory caricature. On Wikipedia, such a display would be considered highly problematic. I don't see why Commons should be different.

JN: You once said 'NPOV and No Original Research have become idle principles'. So what do you propose?

DK: I would like to see a better balance among these principles. Wikipedia's core principles, namely Neutral Point Of View, Verifiability, and No Original Research, seem to me very reasonable as a global editing policy, but these principles are conflicting in many cases. For example, in Hebrew there are several optional names to the territories known in English as the West Bank and the Gaza Strip. Each name implies a political view about the future of these territories. Of course, the article about these territories on the Hebrew Wikipedia includes all of these names, as well as the names used in Arabic and European languages, but one name must have precedence for the article's title, and repeating all the names whenever there is reference to these territories is impossible. A reasonable solution would be to invent a descriptive name for the sake of neutrality, but this would be considered violation of the No Original Research principle. A lot of discretion is needed in such cases in order to decide which principle should be satisfied at the expense of another, but I feel that currently these decisions are more a matter of trend than the result of careful consideration.

If we go back to the issue of references, the demand on the English Wikipedia to back every piece of information with 'reliable sources' has become overrated and even counterproductive in recent times. The change in policy becomes even more evident when comparing the early formulation of the Verifiability principle to the current one. The phrasing went from saying, 'Verifiability is an important tool to achieve accuracy, so we strongly encourage you to check your facts' to the current version that reads, 'The threshold for inclusion in Wikipedia is verifiability, not truth'. So now the sources are positioned at the center, and subsequently editors talk much less about facts and truth, and mostly argue about what kind of documents should be considered reliable sources and which sources should have precedence. For me, a good way to check the reliability of a source would be to send someone to check if the information it offers corresponds to reality. This is not hard to do in a global project like Wikipedia. In my opinion, trying to circumvent the problems of original research and verifiability with a decision to give precedence to one source over another, and an absolute demand to prefer written sources over oral testimonies or photographs, is actually introducing another original research, which is equally problematic if not more. Also, the demand for written 'reliable sources' might have something to do with the fact that the various Wikipedias have relatively few articles about places in Africa and African culture, as Mark Graham showed in his talk at the CPOV Bangalore conference about 'Palimpsests and the Politics of Exclusion' in Wiki spaces.

JN: Another statement of yours on the CPOV-list was, 'Actually Wikipedia has abandoned most of its primary values – it is no longer open to all'. [1] Do you think it was open to all at any point of its history?

DK: This is a good question, which I can answer only according to my personal feeling and intuition. I do feel Wikipedia used to be much more open. Then again, this was at a time when a relatively small group of enthusiasts gathered around this project. It is easy to be friendly when you are not so popular, and paradoxically, when people respond to your friendliness and join you, you become much more closed. This paradox is very human. There are people who are at the center of activity and afraid to lose their position. There is a natural fear of newcomers trying to abuse the system. At some point, a better, more stable mechanism should develop to ensure openness with cautiousness. This kind of mechanism has seemingly developed on the English Wikipedia, but it is as if something went wrong in the process. The English Wikipedia has today an abundance of rules and regulations, it has a quasi-judiciary that tries contributors and punishes them. It has committees that decide about policy in processes that resemble either court sessions or conventions of the UN General Assembly. This system is rather chaotic and lacks many of the checks and balances that can be found in the equivalent 'real-life' systems. For example, I once complained about a certain editor's behavior and found the accusations redirected at me. At the end, it was I who was 'punished' and blocked for several days. Whether or not I deserved this 'punishment', this 'reversal procedure' is usually unacceptable in well-balanced judicial systems. When I started to be active in Wikipedia, I didn't wish for a system that would resemble a judiciary,

1. Dror Kamir, 'Wikipedia and I', posting to CPOV mailing list, 13 April 2010, http://listcultures.org/pipermail/cpov_listcultures.org/2010-April/000090.html.

let alone a poorly managed judiciary. In the past, a newcomer to Wikipedia encountered the normal suspiciousness of people who tried to be open but were afraid of losing the intimacy of their newly formed society and the control over their precious projects. Currently, a newcomer won't survive the entanglement of rules, warnings, bureaucracy, debates, committee decisions and quasi-trials unless he is very manipulative. Paradoxically, these manipulative people are the ones that were supposed to be left out.

JN: I have looked at your slides of your talk at Wikimania 2008 in Alexandria, Egypt, where you presented Wikipedia as a cross-cultural platform. [2] Looking back, do you still regard Wikipedia as 'a platform of cross-cultural dialogue', as you put it?

DK: Yes and no. What I said in Alexandria is still valid, but there are problems I preferred to ignore back then and which I cannot ignore now. I talked optimistically, maybe even euphorically, about embarking on a cross-cultural journey and how anyone can benefit from it. Today, my experience on the Arabic Wikipedia seems to me more like a bonfire party. It was fun and interesting, but I didn't keep a safe distance from the fire. Wikipedia and wiki systems in general certainly have the potential of becoming a platform for cross-cultural dialogue. There are even Wiki-based educational projects in Israel that were initiated specifically for this purpose, usually for encouraging dialogue between Jewish and Arab pupils. I heard about these kinds of projects on the Wikipedia Academy conferences that Wikimedia Israel organized at the Tel Aviv University. Then again, while I think the Wikipedia policy should encourage cross-cultural dialogue for the sake of better articles among other benefits, I am not sure the current policy does that. I am concerned about the concept of 'community autonomy' that became almost a dogma on Wikimedia projects. The idea that each language community sets its own editing rules and etiquette, decides independently which sources to use, which subjects are notable, etc., is meant to ensure diversity and account for cultural variations, but since it became supreme to most other principles, you can never know for sure what to expect when moving from one Wikipedia to another, and you find it much harder to communicate with Wikipedians in different projects. This makes cross-cultural dialogue through Wikipedia very difficult.

JN: Thank you very much for this interview.

2. Dror Kamir, 'Cross-cultural Dialog through Wikipedia', http://www.slideshare.net/DrorK/AlexandriaWithRemarks.

THE RIGHT TO FORK
A HISTORICAL SURVEY OF DE/CENTRALIZATION IN WIKIPEDIA

ANDREW FAMIGLIETTI

The technologically empowered individual has been a source of both hope and romance in existing literature on the political economy of digital media. In one prominent example, Yochai Benkler argues in his 2006 book *The Wealth of Networks* that we have entered an era when the means of information production passed into individual hands. Decentralized ownership of information production, coupled with the free flow of information online, he claims, will lead to greater diversity, as affinity networks of technologically empowered individuals band together in loose alliances to produce large, complex informational products. Benkler believes that maintaining an environment where these affinity networks engaged in 'peer production' can thrive will have an impact on political freedom and social justice. The benefits Benkler imagines – from greater research into pharmaceuticals for diseases afflicting the poor [1] to increased 'individual autonomy' [2] – flow from his belief that peer production will liberate individuals to produce information based on diverse desires and motivations.

For Benkler, an environment of decentralized production ensures individual liberty by permitting those at odds with a particular project to leave and pursue a new but identical project elsewhere. In free software, this practice is known as *forking*. In this essay, I investigate how the concept of forking as a guarantee of individual freedom has influenced the Wikipedia project in theory and practice. Wikipedia's Creative Commons (CC-BY-SA) and GNU Free Documentation (GFDL) licenses mean that anyone is free to copy, modify, and redistribute an article or even the whole of Wikipedia if they wish. In this way, Wikipedia maintains the formal right for users to split from the project. However, this 'right to fork' has not resulted in a decentralized 'encyclopedia located everywhere'. [3] Instead, Wikipedia has emerged as a large, centralized online location for volunteer information production. As I will show, the historical record suggests that this centralization may be due, at least in part, by efforts undertaken by the Wikipedia community, especially Jimmy Wales, to attract, retain, and organize a large pool of volunteer labor to the project. Thus I argue that understanding Wikipedia as a means for liberating diverse desires via decentralized means of production is ultimately a mistake.

Unlike Jaron Lanier, whose essay 'Digital Maoism' characterized Wikipedia's collective nature in threatening terms, [4] I do not think that describing Wikipedia as centralized represents a

1. Yochai Benkler, *The Wealth of Networks: How Social Production Transforms Markets and Freedom*, Cambridge, Mass: Yale University Press, 2006.
2. Ibid.
3. Richard Stallman, 'The Free Universal Encyclopedia and Learning Resource', email on GNU.org, 18 December 2000, http://www.gnu.org/encyclopedia/anencyc.txt.
4. Jaron Lanier, 'Digital Maoism: The Hazards of the New Online Collectivism', Edge, 30 May 2006, http://www.edge.org/3rd_culture/lanier06/lanier06_index.html.

criticism of the project itself. Instead, I call for us to revise our understanding of how projects like Wikipedia work and how critics and activists might successfully intervene in them. As I will demonstrate, Wikipedia, both as a text and as a community of contributors, is the result of a long series of negotiations between the owners of a centralized means of production and their volunteer labor force. In at least some cases, this labor force used the threat of withdrawing their collective efforts to alter Wikipedia's policies. This suggests that those interested in intervening in Wikipedia or other peer-production based projects should often focus on changing the terms of negotiation between interested parties, rather than on merely empowering individuals with technology.

'An Encyclopedia Located Everywhere': The Ideal of Decentralization Present in Early Wikipedia

Richard Stallman is an early believer in decentralized production methods and a vocal advocate of applying principles of free software to an encyclopedia. In December 2000, Stallman posted his call for the creation of 'A Free Universal Encyclopedia and Learning Resource' to the website of the GNU foundation. [5] Stallman outlined the requirements he felt this project must meet in order to be truly 'free'. [6] His call was answered by the short-lived GNUpedia, as well as Wikipedia and its predecessor Nupedia. Stallman ultimately helped convince Wales to license Nupedia and, later, Wikipedia under the GNU Free Documentation License (GFDL), playing a key role in the success of the Wikipedia project.

In his proposal, Stallman imagines a free, universal, radically decentralized encyclopedia project that prevents any single entity from exercizing control over its content by permitting dissenters to create their own versions of the encyclopedia. A distributed network of individually owned computers hosts his ideal encyclopedia 'located everywhere', which will 'be developed in a decentralized manner by thousands of contributors, each independently writing articles and posting them on various web servers'. [7] For Stallman, the free encyclopedia's decentralization guarantees diversity: 'no one organization will be in charge, because such centralization would be incompatible with decentralized progress'. [8] Stallman's proposal for a decentralized encyclopedia project mirrors Benkler's understanding of peer production as decentralized means of information production.

Documents from Wikipedia's first year suggest that the notion of decentralized production was as important to early Wikipedians as it is to Stallman and Benkler. An early version of the Wikipedia FAQ stresses a lack of legal barriers to copying Wikipedia information and encourages users to re-host this information on their websites. One apparently user-submitted question asks:

5. Richard Stallman, 'The Free Universal Encyclopedia and Learning Resource', email on GNU.org, 18 December 2000, http://www.gnu.org/encyclopedia/anencyc.txt.
6. Axel Boldt, 'Static Wikipedia (was: attribution policy)', posting to Wikipedia mailing list, 14 November 2001, http://lists.wikimedia.org/pipermail/wikipedia-l/2001-November/000883.html.
7. Stallman.
8. Stallman.

> Q. Can I mirror entire sections of the Wikipeda [sic] to my site? (Perhaps edited a bit) How much can I quote?
>
> A. You may mirror or quote as much as you wish, as long as you maintain the text under the GNU Free Documentation License. [9]

At least one early Wikipedian saw the possibility of Wikipedia data flowing to other physical bodies to ensure that the project would not be controlled by Jimmy Wales' search engine company Bomis, which at the time provided the site's hosting. An August 2001 debate on the Wikipedia-L mailing list asserted the need for Bomis to provide easily downloadable versions of Wikipedia's content for (relatively) easy copying of the site, and one Wikipedian wrote that such a copy might become necessary if Bomis 'hampers the growth or endangers the freedom'. [10] For this user, if Wikipedia's information escaped any one form of embodiment, it could also escape domination by any single interest, including Bomis. If single domination became imminent, he proposes that users simply replicate the project outside Bomis' reach.

In all cases, early Wikipedia users believed that the freedom granted by the GFDL, which ensured reproduction of Wikipedia's content, meant that information from Wikipedia would not be tied to any single form. Free from legal connection to a physical body, both Stallman and the early Wikipedians assumed that Wikipedia would take a radically decentralized form, spreading widely across different sites. This radically decentralized form, in turn, would guarantee that Wikipedia could not be dominated by one entity. However, this is not the form that Wikipedia would ultimately adopt.

Wikipedia Utility: Centralized Embodiment of Contemporary Wikipedia

When early Wikipedians wrote the 2001 FAQ, Wikipedia was quite modest. In one post to the Wikipedia-L mailing list, Jimmy Wales describes it as a single server equipped with 512 megabytes of memory, [11] less than the computer memory on contemporary phones. Even in 2001, though, this meant a cheap, readily available server. Today the Wikimedia Foundation maintains a primary hosting facility in Tampa, Florida, consisting of 300 servers responsible for 150 million hits per day, supplemented by additional facilities in the Netherlands (an in-kind donation by commercial hosting service Kennisnet) and Korea (provided by Yahoo!). [12] In stark contrast to Stallman's and early Wikipedians' visions, today's Wikipedia is highly centralized. While mirror sites of Wikipedia exist, none have remotely as much influence as Wikipedia.org. Its centralization complicates the ideal of decentralized peer production empowering individuals in diverse media environments.

9. 'Wikipedia FAQ - Wikipedia', 17 December 2001, http://nostalgia.wikipedia.org/wiki/Wikipedia_FAQ.
10. Krzysztof Jasiutowicz, 'The future of Wikipedia', posting to Wikipedia mailing list, 16 August 2001, http://lists.wikimedia.org/pipermail/wikipedia-l/2001-August/000345.html.
11. Jimmy Wales, 'PHP Wikipedia', posting to Wikipedia mailing list, 25 August 2001, http://lists.wikimedia.org/pipermail/wikipedia-l/2001-August/000396.html.
12. Wikipedia contributors, 'Wikimedia partners and hosts - Meta', http://meta.wikimedia.org/wiki/Wikimedia_partners_and_hosts.

While Wikipedia data is reproduced across other sites, a closer examination of these shows that they do not produce opportunities for actors according to Benkler's ideal. The apparently effortless flow of Wikipedia content between computers does not decentralize Wikipedia but makes it more centralized. Since these forms merely reproduce data stored on Wikipedia's servers, they do not independently produce or distribute Wikipedia, even though they permit users to edit the site. Instead, we might consider a computer displaying data stored on Wikipedia's servers as linked in a single embodiment of Wikipedia.

Benkler's vision might still be preserved, however, if multiple versions of this embodiment thrived. Indeed, many entities have reproduced Wikipedia, falling into two categories: *mirrors*, reproducing the data as is, and *forks,* which modify data or attempt to take the project in a new direction. [13] However, neither of these creates a decentralized model of production. Simply allowing technologically empowered individuals to pursue their unique desires will not be sufficient. Instead we must find methods to intervene in collective projects by investigating how Wikipedia volunteers and project organizers negotiate the problem of labor. The history of Wikipedia's relationship to mirrors and forks suggests that the project must attract a large pool of volunteer labor, and this leads the community towards centralization and towards allowing objections to policies considered unfair.

Web of Linkbacks: The Marginal Role of Wikipedia Mirrors

By simply reproducing Wikipedia data without alteration, mirrors do little to provide opportunities for diversifying content. Many of the mirrors listed in Wikipedia's 'Mirrors and Forks' article appear to be crass attempts to monetize content by wrapping it with ads. For example, one Wikipedian explains listed mirror 'area51.ipupdater.com', as: 'Purpose may be spammy: has Google Ads, no real content of its own'. [14] Even so, mirrors play an important role in Stallman's vision for 'an encyclopedia located everywhere'.

Most, but not all, Wikipedia mirrors are quite obscure compared to their source. As of June 2010, Alexa, which publishes information on website traffic, lists Wikipedia as the sixth most visited site worldwide, with only major search engines, YouTube, and Facebook generating more traffic. [15] Google's DoubleClick ad planner maintains a list of the 1000 most visited websites, listing Wikipedia as the fourth most visited, though this excludes some Google sites. [16] Only two Wikipedia mirrors appear in the DoubleClick and Alexa listings: Answers.com (#61 by DoubleClick and #142 by Alexa) and The Free Dictionary (#144 by DoubleClick and #300 by Alexa).

Wikipedia has also deliberately marginalized its mirrors. In 2004, before Wikipedia routinely occupied Google's top search results, Wikipedians were concerned mirrors might eclipse the site's search visibility. Their anxiety over a sea of duplicates led editors to ensure the site's

13. Wikipedians have developed an extensive list of forks and mirrors of the project: Wikipedia contributors, 'Wikipedia:Mirrors and forks', http://en.wikipedia.org/wiki/Wikipedia:Mirrors_and_forks.
14. Ibid.
15. 'Alexa Top 500 Global Sites', http://www.alexa.com/topsites/global.
16. 'Top 1000 sites – DoubleClick Ad Planner', http://www.google.com/adplanner/static/top1000/#.

centrality. On 2 August 2004, in an essay entitled 'Send in the clones' posted to Wikipedia's project discussion area, editor The Anonme noted that, 'there are now a large number of clones of Wikipedia's content on the World Wide Web', and that 'many of these clones are using search engine optimisation techniques to achieve higher rankings on search engines than the original Wikipedia pages'. [17] In response to this, the editor asked, 'should we start to try to compete with these sites?' [18] Extensive discussion of the topic ensued during 2004, with sporadic updates in 2005.

During its active period, the discussion on the 'Send in the Clones' page drew comment from more than 50 Wikipedia editors. Editors differed widely over the proliferation of highly visible Wikipedia mirrors. While no agreement emerged over improving Wikipedia's search standing, it did result in broad consensus that mirror sites must abide by GFDL. By the close of the active editing period, the introductory language of the essay stressed the importance of GFDL. Mirrors are, 'fine if they are in compliance with the GFDL; indeed, [such mirrors were] one of the original goals of the project', [19] and the option of making no attempt to improve Wikipedia's search standing relative to mirrors reads, '[GFDL] Compliant mirrors *help* us in our goal to educate and inform; uncompliant mirrors we should encourage, pressure, and cajole into becoming compliant'. [20]

However, editors collaborating on the 'Send in the clones' essay were not always clear about what compliance with the GFDL entailed. There was disagreement about whether mirror sites should link back to the original article on Wikipedia, and the GFDL is silent about attribution. Despite this, asking for linkbacks became an established Wikipedia policy by the summer of 2004. In posts to the Wikipedia-L mailing list in October 2001, Wales and Sanger both called for sites reusing Wikipedia content to link back. [21] The July 2004 version of the 'Wikipedia:Copyrights' page, which clarifies Wikipedia's copyright, notes that re-users may be able to fulfill GFDL, 'by providing a conspicuous direct linkback to the Wikipedia article hosted on this website'. [22]

Since 2004, Wikipedia has changed its license from the GFDL to a Creative Commons license (CC-BY-SA). Nonetheless, the community continues to consider it important that mirrors provide linkbacks. Under the heading 'Attribution' the current 'Wikipedia:Copyrights' page reads:

17. Wikipedia contributors, 'Wikipedia:Send in the clones', http://en.wikipedia.org/wiki/Wikipedia:Send_in_the_clones#Recent_viewpoint.
18. Ibid.
19. Ibid.
20. Ibid.
21. Jimmy Wales, 'Why an attribution requirement?', posting to Wikipedia mailing list, 24 October 2001, http://lists.wikimedia.org/pipermail/wikipedia-l/2001-October/000630.html; Larry Sanger, 'Why Wikipedia needs linkbacks', posting to Wikipedia mailing list, 30 October 2001, http://lists.wikimedia.org/pipermail/wikipedia-l/2001-October/000660.html.
22. Wikipedia contributors,'Wikipedia:Copyrights', 27 July 2004, http://en.wikipedia.org/w/index.php?title=Wikipedia:Copyrights&oldid=5481147.

> To re-distribute text on Wikipedia in any form, provide credit to the authors either by including a) a hyperlink (where possible) or URL to the page or pages you are re-using, b) a hyperlink (where possible) or URL to an alternative, stable online copy which is freely accessible, which conforms with the license, and which provides credit to the authors in a manner equivalent to the credit given on this website, or c) a list of all authors. [23]

Linkbacks arrange Wikipedia and its mirrors in a particular geometry. Wikipedia does not reciprocate these links but occupies a privileged position, with mirrors on the periphery. Users encountering Wikipedia content on a mirror will have a clear route back to Wikipedia, but once there, they will only find mirrors deep in the project pages. It is not clear if this arrangement raises Wikipedia's search visibility, as some of the editors of 'Send in the clones' believed. But from very early in the project, Wales and Sanger saw this central position as necessary for Wikipedia to attract needed volunteer labor. Wales, in his October 2001 post to the Wikipedia-L, explains:

> What we want to see is Yahoo, AOL/Time Warner, Disney, Google, Microsoft, Altavista, Lycos, etc., all decide to adopt our encyclopedia as the foundation for their own-branded encyclopedia products. But when they do so, we want them to link back to the original project, so that we can ensure that we remain the 'canonical source' for our own community works. [24]

Sanger is even more clear about linkbacks' necessity for the project; they help Wikipedia secure the labor it needs to grow and change. He writes: 'I want to make sure that people who want to contribute to the Wikipedia and Nupedia projects, who see Wikipedia and Nupedia content on other websites, are given the option of returning to the original source of the content and working on it'. [25] As we will see, the need to centralize labor power has an even more drastic effect on forks. However, the possibility of the fork to disrupt productive effort helps volunteers negotiate Wikipedia policies.

'In every case I have given you what you wanted': Forks And Free Labor

More than mirrors, true forks of Wikipedia establish Benkler's vision of an individual-driven information environment. Forks permit those who found Wikipedia's consensus on truth unjust or incorrect to express themselves elsewhere. While explicitly reminding editors that they have the right to fork, Wikipedia asks them not to create point-of-view based forks of articles within Wikipedia itself. [26] Early users on the Wikipedia-L mailing list also expressed forking's value for preserving Wikipedia, should its 'freedom' be compromised by a central point of control. [27]

23. Wikipedia contributors, 'Wikipedia:Copyrights', 28 May 2010, http://en.wikipedia.org/w/index.php?title=Wikipedia:Copyrights&oldid=364714298P.
24. Wales, 'Why an attribution requirement?'.
25. Sanger, 'Why Wikipedia needs linkbacks'.
26. Wikipedia contributors, 'Wikipedia:Content forking', http://en.wikipedia.org/wiki/Wikipedia:Content_forking.
27. Krzysztof Jasiutowicz, '(No Subject)', posting to Wikipedia mailing list, 17 August 2001, http://lists.wikimedia.org/pipermail/wikipedia-l/2001-August/000352.html.

In practice, however, true forks of Wikipedia are more obscure than mirrors. Of the 846 pages listed as mirrors and forks of Wikipedia, 84 are 'mirrors', whereas only 16 are 'forks'. [28] No forks appear on the Alexa list of 500 most-visited websites or the Google DoubleClick list of the 1000 most-visited websites. We find no prominent examples either of direct spin-offs of the project and other web-based volunteer encyclopedias. Citizendium, a highly publicized encyclopedia project launched by estranged Wikipedia cofounder Larry Sanger that revised Wikipedia material according to academic review standards, has an Alexa rank of 48,837 [29] while Conservapedia, an ideologically conservative encyclopedia launched by activist Andrew Schlafly, [30] earns a score of 63,273. The 'recent changes' feature of both pages shows that, unlike Wikipedia, which is edited an average of three times every second, both Citizendium and Conservapedia are edited a slight few hundred times a day.

One early attempt to fork Wikipedia that generated particularly interesting mailing list discussions and secondary records was the Spanish fork, in which Wikipedians working on the Spanish-language Wikipedia left to begin their own project. This incident, covered extensively in this collection in the chapters by Nathaniel Tkacz and Edgar Enyedy, arguably propelled the founding of the non-profit Wikimedia Foundation and the site's advertisement-free policy. Another early attempt was the GNUpedia project, an encyclopedia project announced by the Free Software Foundation in early 2001, just as Wikipedia was emerging. As I will detail next, GNUpedia was perceived as a threat to Wikipedia's supply of volunteer labor, and even though the project ultimately failed to attract a reliable volunteer base itself or to function as a tool of radical empowment, the fork operated as a check on potential abuses of Wikipedia's collective labor.

GNUpedia

Early in 2001 the GNU project, founded by Richard Stallman, announced that it would begin an encyclopedia project called GNUpedia, in line with Stallman's call for a 'A Free Universal Encyclopedia and Learning Resource'.

The earliest available version of a page devoted to the project on GNU's website, archived in January 2001, describes the project in ambitious, if vague, terms: 'GNUPedia is a project for the development of a free encyclopedia. GNUPedia IS NOT part of the GNU System (we don't need an encyclopedia on the operating system). The GNU community supports GNUPedia by contributing with the software needed to collect and search the data on the

28. 'Wikipedia:Mirrors and forks'.
29. 'citizendium.org - Information from Alexa Internet', http://www.alexa.com/search?q=citizendium.org&r=home_home&p=bigtop.
30. Background information on Conservapedia was gathered from the following sources: Hugh Muir, 'Hugh Muir: Diary, Politics', *The Guardian*, 3 October 2008, http://www.guardian.co.uk/politics/2008/oct/03/2; Brock Read, 'A Wikipedia for the Right Wing', *Wired Campus*, 2 March 2007, http://chronicle.com/blogPost/A-Wikipedia-for-the-Right-Wing/2875/; Robert Siegel, 'Conservapedia: Data for Birds of a Political Feather?' NPR, 13 March 2007, http://www.npr.org/templates/story/story.php?storyId=8286084.

encyclopedia'. [31] On 16 January 2001, project coordinator Hector Arena sent a brief test message to the project's mailing list. [32] By the next day the mailing list was frenzied with activity and inquiries about article submission, project goals, and plans for future action. However, this activity quickly faded.

By April 2001, GNU replaced the webpage for GNUpedia with an announcement explaining it was supporting Nupedia instead. Meanwhile, messages on the GNUpedia mailing list slowed to a trickle, with only a few dedicated volunteers developing a project they now called GNE (a recursive acronym in the tradition of GNU, GNE stood for GNE's Not an Encyclopedia). Even these volunteers departed by early 2002, and the list received only automated spam messages advertising free printer ink and trojan-infected executables. A lonely homepage for GNE remains on the servers of Sourceforge (a popular hosting site for free and open source software projects), but visitors will find no links to content, only an ambitious manifesto proclaiming that GNE is, 'an attempt to build a comprehensive documentation of all human thought', and that, 'there is no central authority here that will censor your text. GNE and moderators will not influence the bias of any article, so this will not become westernised [sic] like so many resources'. [33] The GNE project represented a possible alternative to Wikipedia, committed to radically decentralized governance. Unlike Wikipedia, GNE intended to allow 'content forking', the ability for individuals or groups to write different articles on the same subject, reflecting differing points of view.

With such a promising beginning, why was GNE abandoned? The decline perhaps begins on 17 January 2001, when Jimmy Wales sent a message to the GNUpedia mailing list asking GNUpedia volunteers to, 'please investigate http://www.nupedia.com/' and imploring them that 'WE WANT YOUR HELP.:-) [sic]'. [34] He closed by writing, 'I really hope that all of the effort here will be focused toward the existing project, rather than forking for no reason at all'. Wales proceeded to mount a sustained campaign over the coming weeks, characterizing the GNUpedia project as a fork of Nupedia (despite the fact that the two shared no code or content but were simply parallel attempts to build a free encyclopedia) and asking the GNUpedia project team to join Nupedia instead. Wales argued that maintaining two separate projects with the same goal (building a free encyclopedia) was foolish. He called 'breaking the project in two for no reason', an 'insane course', and hoped that 'the community will speak with one voice -- divisiveness is bad, co-operation is good, freedom is good'. [35] Wales' reasoning seemed to have traction among many readers of the GNUpedia list. One member's post and another's reply reads:

31. 'GNUPedia Project - GNU Project - Free Software Foundation (FSF)', 24 January 2001, http://web.archive.org/web/20010124072200/http://www.gnu.org/encyclopedia/index.html
32. Hector Facundo Arena, '[Bug-gnupedia]asd', posting to the Bug-gne mailing list, 16 January 2001, http://lists.gnu.org/archive/html/bug-gne/2001-01/msg00000.html.
33. 'GNE - Home', http://gne.sourceforge.net/eng/index.html.
34. Jimmy Wales, '[Bug-gnupedia] Nupedia', posting to the bug-gne mailing list, 17 January 2001, http://lists.gnu.org/archive/html/bug-gne/2001-01/msg00103.html.
35. Mike Warren, 'Re: [Bug-gnupedia] The question must be raised', posting to the bug-gne mailing list, 25 January 2001, http://lists.gnu.org/archive/html/bug-gne/2001-01/msg00789.html.

> I still don't think we're 'forking'. We're just redefining what
> 'GNE, Nupedia and The Free Universal Learning Resource' all mean.

Except that many people here seem to be talking about doing a lot of the same things that Nupedia is *already* doing, and doing quite well. [36]

Not all list members agreed with Wales that GNUpedia was fundamentally the same as Nupedia. Volunteer Bryce Harrington complained that the Nupedia article approval process was overly complicated, and the project description appeared to limit participation by non-experts. [37] In response, Wales wrote, 'All of this should be changed. Our actual position is much 'softer' and 'more welcoming' than the tone of that page indicates'. [38] In a later post Wales suggested that Harrington might want to investigate Wikipedia (which at that point was only a few days old), [39] and Harrington ultimately became a very active and vocal early contributor to the Wikipedia project. For the most part, Wales responded to concerns about Nupedia by GNUpedia list members by conceding possible Nupedia failures and promising to make changes to accommodate GNUpedia project members. In a response to a message in which Arena argued that he 'has reasons' for wanting GNUpedia and Nupedia to remain seperate, Wales wrote, 'I have answered, point by point, each of your reasons, and *in every case I have given you what you wanted*'. [40]

Through vigorous intervention on the GNUpedia list, Wales prevented what he perceived as a disruptive split in the pool of volunteer labor available to the Nupedia (later Wikipedia) project. He did this by accommodating the concerns of GNUpedia volunteers and persuading them to leave their project to join his. Rather than a history of radically empowered individuals pursuing their own agendas through collectively owned technology, Wikipedia developed through negotiation between volunteers and project managers, collectively deciding on the ground rules for a shared project. GNUpedia did not succeed in persuading enough volunteers to contribute the labor necessary for a successful project, but Wikipedia did.

'We have partisans working together on the same articles':
Labor as a Force Shaping Features of the Wikipedia Policy

Yet even though GNE was abandoned, recruiting and retaining volunteer labor in the face of 'the threat of forking' helped shape important Wikipedia policies, especially Neutral Point of View (NPOV). Nupedia and Wikipedia's early adoption of GFDL clearly represents an attempt

36. Warren, 'Re: [Bug-gnupedia] The question must be raised'.
37. Bryce Harrington, 'Re: [Bug-gnupedia] Some ideas for GNU/Alexandria', posting to the bug-gne mailing list, 21 January 2001, http://lists.gnu.org/archive/html/bug-gne/2001-01/msg00475.html.
38. Jimmy Wales, 'Re: [Bug-gnupedia] Some ideas for GNU/Alexandria', posting to the bug-gne mailing list, 21 January 2001, http://lists.gnu.org/archive/html/bug-gne/2001-01/msg00477.html.
39. Jimmy Wales, 'Re: [Bug-gnupedia] Design proposal', posting to the bug-gne mailing list, 22 January 2001, http://lists.gnu.org/archive/html/bug-gne/2001-01/msg00528.html.
40. Jimmy Wales, 'Re: [Bug-gnupedia] The path to peace', posting to the bug-gne mailing list, 25 January 2001, http://lists.gnu.org/archive/html/bug-gne/2001-01/msg00771.html. Italics added for emphasis.

to use the social cache of the well-known free license to attract labor, ensuring their right to fork if Wales's company Bomis became too exploitative. Wales says as much in an October 2001 post to the Wikipedia-L mailing list, responding to calls for a Wikipedia-specific license by writing 'I would actually prefer if we had a way to release under a Wikipedia-specific license, but I think we need the instant "free" credibility of the GNU FDL license. It tells people immediately that they can count on certain things'. [41] In addition, by adopting the GFDL Wales secured the support of Stallman, ensuring that rival projects like GNUpedia would be denied the support of GNU servers and resources.

Wikipedia's most important content policy, NPOV, also took shape to recruit labor. Based on Nupedia's 'Non-bias' content policy, NPOV was one of Wikipedia's first policies, and early versions of NPOV quickly evolved to meet the needs of collective labor. Nupedia's Non-bias policy treats bias as the function of a single author writing an article objectively: 'On every issue about which there might be even minor dispute among experts on this subject, is it very difficult or impossible for the reader to determine what the view is to which the author adheres?' [42] From a very early stage, NPOV reflected the need to build consensus and cooperation among multiple authors. The earliest revision of NPOV still retained on the English Wikipedia, dated 10 November 2001, reads in part:

> The neutral point of view attempts to present ideas and facts in such a fashion that both supporters and opponents can agree. Of course, 100% agreement is not possible; there are ideologues in the world who will not concede to any presentation other than a forceful statement of their own point of view. We can only seek a type of writing that is agreeable to essentially rational people who may differ on particular points. [43]

Textual evidence from later versions of NPOV, as well as early Wikipedia press releases, demonstrates Larry Sanger and others saw NPOV as a key to ensuring Wikipedia would attract free contributions. By December 2001, NPOV was extensively updated and expanded. A section of it entitled, 'Why should Wikipedia be unbiased?' reads:

> Wikipedia is a general encyclopedia, which means it is a representation of human knowledge at some level of generality. But we (humans) disagree about specific cases; for any topic on which there are competing views, each view represents a different theory of what the truth is, and insofar as that view contradicts other views, its adherents believe that the other views are false, and therefore not *knowledge*. Indeed, Wikipedia, there are many opinionated people who often disagree with each other. Where there is disagreement about what is true, there's disagreement about what constitutes knowledge. Wikipedia

41. Jimmy Wales, 'Details of licensing – should we bother?', posting on Wikipedia mailing list, 1 November 2001, http://lists.wikimedia.org/pipermail/wikipedia-l/2001-November/000696.html.
42. 'Nupedia: Editorial Policy Guidelines', 31 March 2001, http://web.archive.org/web/20010331211742/http://www.nupedia.com/policy.shtml#III.
43. Wikipedia contributors, 'Wikipedia:Neutral point of view', 10 November 2001, http://en.wikipedia.org/w/index.php?title=Wikipedia:Neutral_point_of_view&oldid=334854039.

> works because it's a collaborative effort; but, whilst collaborating, how can we solve the problem of endless 'edit wars' in which one person asserts that *p,* whereupon the next person changes the text so that it asserts that *not-p*? [44]

This addition shows how the policy recruited labor necessary to build and maintain the site from a diverse pool of contributors. Together, GFDL and NPOV addressed anxieties about volunteer labor that Wales and Sanger expressed in their interventions in the GNUpedia incident.

Conclusion

Despite its influence, the ideal of decentralized production does not accurately describe Wikipedia's current condition. Yet this ideal has shaped the policies and practices of Wikipedia as users negotiate with the owners of Wikipedia's server space.

Attempts to create an encyclopedia based on the ideal of decentralized production and individual agendas do still persist. Levitation, for instance, converts the Wikipedia database to a format hosted via Git, a decentralized technology used to share and track free software projects. The author of the project writes, 'it is an experiment, whether the current "relevance war" in the German Wikipedia can be ended by decentralizing content'. [45] While attempts to resolve negotiations in Wikipedia via technological decentralization might not fail, its most likely effect may be changing the terms of the debate.

More importantly, however, understanding Wikipedia as shared and centralized should shift our understanding of power and control in digital media. Just as early Wikipedians worried that Bomis would exercize too much power over their project, critics of Apple, for instance, point out that it wields considerable control over its iPad by determining its software. These critics too often conjure the same vision as early Wikipedians, one that touts pure freedom by mastery of individually controlled technology. In his scathing rebuttal to iPad boosterism, science fiction writer Cory Doctrow quotes the Maker Manifesto: 'if you can't open it, you don't own it'. [46]

Yet the image of individual autonomy ensured by machine mastery, which Doctrow provides here, while admittedly attractive, is an illusion. Instead of technologically empowered individuals charting their own destinies, Wikipedia shows something different: a community of users negotiating a shared space, with mutual obligations and often complicated governance procedures. As we map the challenges of emerging technologies, we should be guided by this latter vision, rather than relying on inaccurate and harmful ideologies of possessive individualism. Perhaps then we can build a digital community founded on mutual obligations and shared affinities.

44. Wikipedia contributors, 'Wikipedia:Neutral point of view', 24 December 2001, http://en.wikipedia.org/w/index.php?title=Wikipedia:Neutral_point_of_view&oldid=270452.
45. 'scy/levitation', GitHub, https://github.com/scy/levitation.
46. Cory Doctorow, 'Why I won't buy an iPad (and think you shouldn't, either)', Boing Boing, 2 April 2010, http://boingboing.net/2010/04/02/why-i-wont-buy-an-ipad-and-think-you-shouldnt-either.html.

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WIKIPEDIA AND AUTHORITY

MATHIEU O'NEIL

As it celebrated its 10th anniversary in January 2011, Wikipedia could rightfully claim to be the most successful example of online commons-based and oriented peer production. This mass project has taken on many features of the hacker universe, starting with the notion that power should detach from corporate hierarchies so that participants are free to create their own management structures. Hacker-inspired peer projects are also characterized by the tension between openness and elitism; what distinguishes Wikipedians from outsiders is their familiarity with project language and rules.[1] The term 'governance' is frequently used to describe the arrangements of power relations in such groups. Wikipedia has variously been considered an example of the give and take typical of bazaar governance,[2] as anarchic,[3] as democratic,[4] as meritocratic,[5] as a hybrid of different governance systems;[6] in any case as a self-governing institution[7] that can also be called an 'adhocracy'.[8]

Domination in Web 2.0 projects such as Wikipedia is indeed distributed, which means new entrants can rapidly attain powerful positions, a process that results in multiple autonomous leaders. This paper argues that a helpful way to understand this distribution of power is to examine roles within Wikipedia's organizational structure. Occupying a recognized role means that people can operate as authorities legitimately exercizing restraining actions over other participants. 'Authority' or legitimate domination was a core notion for organization studies, but its meaning was eroded by its association with Parsonian functionalist theory, with its emphasis on consensus and the stability of central value systems for social order.[9] Rather

1. Wiki-vocabulary includes 'forum shopping' (canvassing for support), 'fancruft' (unencyclopedic content), 'smerge' (small merge), 'hatnote' ('short notes placed at the top of an article before the primary topic'), and the like. This specialized language does not appear in 'article space', but in talk pages where participants debate and negotiate.
2. Eric Raymond, *The Cathedral & the Bazaar,* Sebastopol, CA: O'Reilly, 1999.
3. Joseph Reagle, 'A Case of Mutual Aid: Wikipedia, Politeness, and Perspective Taking', *Wikimania 2005*, Frankfurt, Germany, 5 July 2005.
4. Don Descy, 'The Wiki: True Web Democracy', *TechTrends* 50.1 (2006): 4-5.
5. Axel Bruns, *Blogs, Wikipedia, Second Life, and Beyond: From Production to Produsage*, New York, Bern: Peter Lang, 2008.
6. Todd Holloway, Miran Bozicevic and Katy Börner, 'Analyzing and Visualizing the Semantic Coverage of Wikipedia and its Author', *Complexity* 12.3 (2005): 30-40.
7. Sander Spek, Eric Postma and H. Jaap van den Herik, 'Wikipedia: Organisation from a Bottom-up Approach', WikiSym 2006, Odense, Denmark (2006, August).
8. Piotr Konieczny, 'Adhocratic Governance in the Internet Age: A Case of Wikipedia', *Journal of Information Technology & Politics* 7.4 (2010): 263-283.
9. Stewart R. Clegg, David Courpasson, Nelson Phillips, *Power and Organisations*, Thousand Oaks: Sage.

than conceptualizing actions in terms of legitimization, a strategy more appropriate to an anti-authoritarian environment such as Wikipedia might be to frame authorities as *justifying* restraining actions by referring to common understandings or conventions. [10]

Authority and Justification

To name these conventions, I propose a remix of the classic Weberian concept of 'authority' or 'legitimate domination'. An individual type of justification, based on the extraordinary skills of an individual, is *charismatic hacker justification*. Steven Levy defined the 'hacker ethic' as the commitment to the free access of computers and information, the mistrust of centralized authority, and the insistence that hackers be evaluated solely in terms of technical virtuosity and not 'bogus' criteria such as degrees, age, race, or position. [11] In Weber's original typology, merit-based promotion distinguishes legal systems from patrimonial and charismatic ones. [12] But in the hacker universe, and by extension in all volunteer-staffed online peer projects, if work for the project constitutes the basis for recognition, this recognition is 'paid', in effect, in the shape of the respect of one's peers, and not by an official promotion, commendation, or financial bonus awarded by a hierarchy. This de-bureaucratization or charismatization of merit means that people have to prove their competence to all during public performances of excellence.

Table 1. Regimes of Online Legitimation

	hacker-charisma	**index-charisma**	**collectivist**	**archaic force**
role	elder, maintainer	hub, bridge	judge, enforcer	troll, scapegoat
act	aggregate	connect	deliberate	confront
logic	epistemic	situational	procedural	honour
object	explanations	rankings	votes	flames
space	project	network	assembly	forum

10. Luc Boltanski and Laurent Thévenot, *On Justification: Economies of Worth*, Princeton, NJ: Princeton University Press, 2006 [1991].
11. Steven Levy, *Hackers: Heroes of the Computer Revolution,* Garden City, NY: Doubleday, 1984.
12. Max Weber, *Economy and Society: An Outline of Interpretive Sociology,* Berkeley, Los Angeles and London: University of California Press, 1978 [1922].

Web 2.0 precipitated an evolution of online charisma, which no longer solely depended on exceptional competence or creative action. Online charisma now also stemmed from the position on a network and could apply to non-human actors such as websites. This new justificatory resource is called *index-charisma* since the authority of actors is derived from their relative position in an index of web pages, which is the core component of search engines. Index-charisma results from the independent choices of a multitude of people: in the case of Google, for example, links made by other sites and decisions made by internet users when confronted with the result of a query determine the ranking of websites. While a kind of network centrality, index authority differs from the network centrality traditionally studied by Social Network Analysis (SNA), which calculates measures only across the actors in the study, while index authority is calculated over the entire web graph. The index authority of a given website cannot be easily modified by changing a few links in the hyperlink network formed by this website's immediate ecological niche. [13] This justificatory regime does not directly operate within Wikipedia, with the possible exception of highly trafficked policy pages. Index authority can be said to have an impact on the project in that it is raising the stakes of content disputes, as Wikipedia's return in the top three results for most Google queries means that those who manage the encyclopedia's controversial areas are effectively defining reality.

Though the democratization of online communication and production, thanks to tools such as blogs and wikis, has stretched the boundaries of belonging, the internet remains an exclusive enclave. Within this protected universe, strong divisions persist, deriving from the identity of its first inhabitants. Like Free Software, for example, Wikipedia constitutes an environment with a highly skewed gender distribution. According to a United Nations University survey, only 25% of Wikipedians are female. [14] Criticism of aggressive behavior in online settings was long disqualified as constituting an intolerable censorship of freedom of speech. [15] The agonistic spirit of netiquette lives on in Wikipedia, as it is still acceptable to communicate aggressively on the site, provided that the comments are not 'personal'. [16] Other manifestations of *archaic force* are the vandalism and trolling that afflict the project.

After charisma and archaic force, a third type of convention can be detected in online projects. Following the expansion of free medical clinics, legal collectives, food cooperatives, free schools, and alternative newspapers in the 1970s, Rothschild-Whitt defined collectivist organizations as alternative institutions that 'self-consciously reject the norms of rational-bureaucracy'. [17] Aside from their value-rational orientation to social action (based on a belief

13. Robert Ackland and Mathieu O'Neil, 'Online Collective Identity: The Case of the Environmental Movement', *Social Networks*, 2011, in press.
14. Rüdiger Glott and Rishab Ghosh, 'Analysis of Wikipedia Survey. Topic: Age and Gender Differences', UNU-Merit, 2010.
15. Susan Herring, 'The Rhetorical Dynamics of Gender Harassment On-Line', *The Information Society* 15.3 (1999): 151-167.
16. Sage Ross, 'Review of *Cyberchiefs: Autonomy and Authority in Online Tribes*', *The Wikipedia Signpost*, 15 June 2009, http://en.wikipedia.org/wiki/Wikipedia:Wikipedia_Signpost/2009-06-15/Book_review.
17. Joyce Rothschild-Whitt, 'The Collectivist Organisation: An Alternative to Rational–Bureaucratic Models', *American Sociological Review* 44.4 (August 1979): 509.

in the justness of a cause), collectivist organizations are groups in which authority resides not in the individual or by virtue of incumbency in office or expertise, but 'in the collectivity as a whole'; decisions become authoritative to the extent that all members have the right to full and equal participation. There are no established rules of order, no formal motions and amendments, no votes, but instead a 'consensus process in which all members participate in the collective formulation of problems and negotiation of decisions'. [18] The Internet Engineering Task Force (IETF) thus always took pains to portray itself as anti-bureaucratic, as a collection of 'happenings' with no board of directors or formal membership, and open registration and attendance at meetings: 'The closest thing there is to being an IETF member', said the group's *Tao,* 'is being on the IETF or working group mailing lists'. [19] In reality, this formal openness was based on an unspoken premise: only the highly technically competent need apply. Therein lies an important difference between the free encyclopedia and free software. Central to Wikipedia is the radical redefinition of expertise, which is no longer embodied in a person but in a process, in the aggregation of many points of view. This is the famous concept of the 'wisdom of the crowd', [20] which applies to knowledge the free software slogan that 'with enough eyeballs, all bugs are shallow'. [21]

Expert authority is commonly distinguished from the administrative authority of leaders. However, when computers became networked, only hackers knew how to manage the new systems: they assumed by default the power to control conditions of access and user privileges. Wikipedia shares the hacker rejection of outside credentials: only work for the project counts. Further, work being broken down to such a micro-contributory level has led many to posit that the project rejects any kind of expert authority. In reality, homegrown forms of expertise have emerged and the importation of real or imaginary external credentials occurs frequently. [22] Yet these forms contradict the wisdom of the crowd: traditional expertise cannot constitute the basis for administrative actions in an online mass peer project such as Wikipedia, which is founded on the notion that anyone can add, delete, and perform restraining actions, provided they respect the rules of the project. Outside credentials such as specialized expertise must always give way to homegrown justificatory regimes.

Authority and Wikipedia

If expertise is not the basis for decision-making on Wikipedia, what is? Like most commons-based peer production projects, the free encyclopedia comprises both collectivist or *sovereign* and charismatic justifications. Diverse manifestations of online charisma share a central feature: they are intimately linked to the characteristics of the individual person or site and are nontransferable. The *identification of role and person* of hacker charisma is first embodied in Wikipedia in the person of the project's remaining co-founder. Without a doubt,

18. Ibid: 511-512.
19. Paul Hoffman and Susan Harris. 'The Tao of the IETF: A Novice's Guide to the Internet Engineering Task Force', RFC 4677, 30 November 2009.
20. James Surowiecki, *The Wisdom of Crowds*, Boston: Little, Brown, 2004.
21. Raymond.
22. Mathieu O'Neil, 'Shirky and Sanger, or the Costs of Crowdsourcing', *Journal of Science Communication* 9.1 (2010).

Jimmy Wales occupies a special place in Wikipedia. Semi-facetiously known by others as the project's 'God-king' or 'benevolent dictator', [23] and by himself as its 'spiritual leader', [24] he is in any case Wikipedia's chief spokesperson and champion. Though ultimate effective power may rest in the Wikimedia Foundation, this is a distant and faceless entity, whereas Wales' visage adorns fundraising campaigns and he involves himself in site management.

In 2006 Marshall Poe approvingly described his 'benign rule', asserting that Wales had repeatedly demonstrated an 'astounding reluctance to use his power, even when the community begged him to', refusing to exile disruptive users or erase offensive material. [25] In fact, Wales still wields extraordinary powers. When a user contradicted him by unblocking Wale's block of a problematic user, the co-founder slapped a week-long ban on him. [26] In July 2008 Wales intervened in a discussion about whether an admin accused of misogyny had acted appropriately by stepping in and cursorily 'desysopping' the admin. [27] Wales also makes dramatic interventions in policy discussions, as in March 2007 when he reverted the merger of the categories of Verifiability, No Original Research and Reliable Sources into Attribution, a move which had been under community discussion for months and about which consensus was proving hard to achieve. [28] Since these actions were performed by the project's charismatic co-founder, they were not perceived as unjustified. However, they contradicted the procedural basis of a sovereign authority regime and generated controversy. For all that, it is quite likely that if interventions by the co-founder have such high visibility and, as the project continues to grow, diminishing justificatory potency, then they will be increasingly challenged as newer entrants enter the project.

Charisma can also be distributed, as when it appears through the effective rewards that editors exhibit on their personal pages. Contributions to the project are statistically measurable by software tools: reputation on Wikipedia is a function of the number of edits or 'edit counts'. [29] But there is little social validation to be found in a display of statistics or in assertions that one's best work lies in Featured Articles x, y and z. Regard for the hard graft accomplished for the project is instead materialized in 'barnstars', idiosyncratic tokens of appreciation that are publicly conferred by one participant to another and appear on the per-

23. David Mehegan, 'Bias, Sabotage Haunt Wikipedia's Free World', *Boston Globe*, 12 February 2006: C1.
24. Jimmy Wales 'Foundation Discretion Regarding Personnel Matters', posting to Wikimedia Foundation mailing list, 15 December 2007, http://lists.wikimedia.org/pipermail/foundation-l/2007-December/036069.html.
25. Marshall Poe, 'The Hive', *Atlantic Monthly*, September 2006, http://www.theatlantic.com/magazine/archive/2006/09/the-hive/5118/.
26. Mathieu O'Neil, *Cyberchiefs: Autonomy and Authority in Online Tribes*, London: Pluto Press, 2009, p. 158.
27. Ibid.
28. Konieczny: 270.
29. See Aniket Kittur, Ed Chi, Bryan A. Pendleton, Bongwon Suh and Todd Mytkowicz, 'Power of the Few vs. Wisdom of the Crowd: Wikipedia and the Rise of the Bourgeoisie', Twenty-fifth Annual ACM Conference on Human Factors in Computing Systems, CHI 2007, San Jose, CA, 28 April-3 May 2007.

sonal pages of Wikipedians. But ultimately, though reputation may serve to influence others during a debate or dispute, it does not enable restraining actions.

The clearest manifestation of administrative power on a digital network is the capacity to exclude participants (or classes of participants) or to strip them of some of their privileges (such as editing a page). Originally Wales dealt with every instance of disruptive behaviour, but in October 2001, he appointed a small group of system administrators. [30] The rising volume of contributions eventually compelled him to formally announce in 2003:

> I just wanted to say that becoming a sysop is *not a big deal*. I think perhaps I'll go through semi-willy-nilly and make a bunch of people who have been around for awhile sysops. I want to dispel the aura of 'authority' around the position. It's merely a technical matter that the powers given to sysops are not given out to everyone. I don't like that there's the apparent feeling here that being granted sysop status is a really special thing. [31]

The project similarly claims that it is 'not a bureaucracy'. [32] Yet Wikipedia, like most large peer produced projects, comprises typically bureaucratic features such as the maintenance of archives of all decisions, the existence of rules, and, particularly, the *separation of roles and persons*: any Wikipedia editor can become an 'administrator' and hence exercize authority over other participants; these officers can also be replaced by someone else. A complex hierarchy has emerged, composed not only of 'admins' (or 'sysops') but also of 'stewards' and 'bureaucrats', each of these roles being endowed with specific tools and competencies. The difference with corporate bureaus are the stated transparency of decisions and commitment to consensus-building. The complement to online charisma – online sovereign justification – can be thought of as a fusion of direct-democratic and bureaucratic traits.

Authority and Vandalism

Traditionally content creators were 'pre-admins': they were occasional editors, self-styled specialists. A study analyzing the work of a sample of Wikipedia editors showed that new users created three-quarters of the high-quality content, especially during their first three or four months. Initially admins produce high levels of content at a less rapid pace, but as they become more involved in meta-matters, their contributions become both more frequent and less content-oriented. [33] Their primary concern is now for the health of the project itself; they have become custodians. This division between content-oriented and process-oriented users can generate tension.

Editors nominated for a request for adminship (WP:RFA) must field questions from the community for seven days in order to assess their experience and trustworthiness. Close attention is paid to a candidate's record of handling contentious issues, such as content disputes with other editors. Any registered user can ask questions or vote. The decision is not based on strict numerical data but on 'rough consensus' (as determined by a bureaucrat), which means receiving around 75 percent of support. [34] It is proving increasingly hard to become a Wikipedia administrator: 2,700 candidates were nominated between 2001 and 2008, with a success rate of 53 percent. The rate has dropped from 75.5 percent until 2005 to 42 percent in 2006 and 2007. Article contribution was not a strong predictor of success. The most successful candidates were those who edited the Wikipedia policy or project space; such an edit is worth ten article edits. Conversely, edits to Arbitration or Mediation Committee pages, or to a wikiquette noticeboard, decrease the likelihood of being selected. [35]

The most important responsibility of sysops, and the one which has proved most momentous in terms of long-term impact, is to protect the project from malicious editing. Since anyone can contribute anonymously to Wikipedia, the temptation to cause mischief is high. There are many shades of vandalism, including 'misinformation, mass deletions, partial deletions, offensive statements, spam (including links), nonsense and other'. [36] Widespread vandalism has resulted in the emergence of a new breed of sysop, whose main claim to adminship is their work as 'vandal bashers', using reverting software such as Huggle. Defacements occurring in 'articlespace' are easily detectable and reversible, especially when they are crude or juvenile. More insidious vandals attempt to abuse the policing system. The deliberate misuse of administrative processes is a favorite 'troll' game. [37]

Many of these activities involve the use of 'sockpuppets' (known in the French version as *faux-nez* or 'fake noses'): people create alternative accounts in addition to their existing Wikipedia identities in order to take part in debates and votes. 'Sock' lore has become an important part of the project's inner cultural consciousness. According to this specialized knowledge, socks have been created so that users can conduct arguments with themselves; some editors have created hundreds of fake personae. [38] How can one tell if a sock is at

30. Stacy Schiff, 'Know it All', *New Yorker*, 31 April 2006.
31. Jimmy Wales, 'Sysop status', posting to Wikien-l mailing list, 11 February 2003.
32. Wikipedia contributors, 'What Wikipedia Is Not', http://en.wikipedia.org/wiki/Wikipedia:What_Wikipedia_is_not.
33. Seth Anthony, 'Contribution Patterns Among Active Wikipedians: Finding and Keeping Content Creators', Wikimania, 5 August 2006.
34. Wikipedia contributors, 'Wikipedia: Guide to request for adminship', http://en.wikipedia.org/wiki/Wikipedia:Guide_to_requests_for_adminship.
35. Moira Burke and Robert Kraut, 'Taking Up the Mop: Identifying Future Wikipedia Administrators', in Proceedings of the Conference on Human Factors in Computing Systems, Florence, Italy, 5-10 April 2008, pp. 3441-6.
36. Reid Priedhorsky, Jilin Chen, Shyong K. Lam, Katherine Panciera, Loren Terveen and John Riedl, 'Creating, Destroying, and Restoring Value in Wikipedia', in Proceedings of the International ACM Conference on Supporting Group Work, Sanibel Island, FL, 4-7 November 2007, pp. 259-68.
37. Examples include the continual nomination for deletion of articles that are obviously encyclopedic, the nomination of stubs (draft articles) as featured-article candidates, the baseless listing of users at WP:Requests for comment (a dispute resolution mechanism), the nomination of users who obviously do not fulfil the minimum requirements at WP:Requests for adminship, the 'correction' of points that are already in conformance with the manual of style, and giving repeated vandalism warnings to innocent users. See Wikipedia contributors, 'Wikipedia: What is a troll? Misuse of process', http://meta.wikimedia.org/wiki/What_is_a_troll#Misuse_of_process.
38. See Wikipedia contributors, 'Category:Suspected Wikipedia sockpuppets', http://en.wikipedia.org/wiki/Category:Suspected_Wikipedia_sockpuppets.

work? Certain signs are telling: socks exhibit a strong interest in the same articles as their other personae; they often employ similar stylistic devices; and they make similar claims or requests as their puppet master. When editors suspect that a user is 'socking', that is to say exhibiting 'sockish' behaviour, or that a 'sock farm' has been detected, they can call on a special weapon. This is the CheckUser software, accessible to a restricted number of admins. CheckUser identifies what IP address registered Wikipedians are accessing the site from. If it is found that distinct accounts involved in disputes are issuing from the same terminal, Wikipedia's authorities can ban entire areas or even ISPs. Though technology-savvy users can always use proxys or anonymizing mechanisms such as TOR (The Onion Router), CheckUser is regarded by Wikipedians as a valid means for identifying vandals, and those admins who are entrusted with it are held in high regard. The problem with developing a strong counter-sock response capability is that it opens the door to a mindset that detects 'enemies of the project' where none exist, leading to possible miscarriages of justice. [39]

As the volume of work and disputes grew, a mediation committee was established to find common ground between edit warriors; however, it had no coercive power. Eventually Wales established an Arbitration Committee (ArbCom) comprising a dozen individuals (since 2010 expanded to 18); it constitutes Wikipedia's Supreme Court, as the last step in the dispute resolution process. The ArbCom now also grants special tools to admins, such as CheckUser and Oversight (permanently removing data from the archive). This body would impose solutions considered binding, said the co-founder, though he,

> reserved the right of executive clemency and indeed even to dissolve the whole thing if it turns out to be a disaster. But I regard that as unlikely, and I plan to do it about as often as the Queen of England dissolves Parliament against their wishes, *i.e.*, basically never, but it is one last safety valve for our values. [40]

This fail-safe mechanism's constitutionality or applicability is doubtful because Wikipedia lacks a constitution that would enable this process to occur in a peaceful manner.

Authority and Rules

In order to make the project work, 'all it takes', we are told, 'is mutual respect and a willingness to abide by referenced sources and site policy'. [41] Benkler and Nissenbaum have argued that Wikipedia constitutes a remarkable example of self-generated policing. They extol the project's use of open discourse and consensus, as well as its reliance on 'social norms and user-run mediation and arbitration rather than mechanical control of behaviour'. [42] The system does indeed work well for many; scores of editors, and particularly admins, treat others patiently and fairly. However in other cases it does seem that the power asymmetries

39. O'Neil, *Cyberchiefs*, pp. 164-166.
40. Jimmy Wales, 'Mediation, arbitration', posting to Wikien-l mailing list, 16 January 2004,
41. Wikipedia contributors, 'Wikipedia: No Angry Mastodons', http://en.wikipedia.org/wiki/Wikipedia:No_angry_mastodons.
42. Yochai Benkler and Helen Nissenbaum, 'Commons-Based Peer Production and Virtue', *Journal of Political Philosophy*, 14.4 (2006): 397.

deriving from the accumulation of competencies and tools over time can lead to injustice. This stems from the interrelated impact of three elements that lie at the heart of the Wikipedia experience: surveillance, rules, and anonymity. We should bear in mind Bryant, et. al.'s key observation that Wikipedia software is designed to *encourage the surveillance of others' contributions*, through watch lists for example. [43] This feature allows the project's protection from vandals. But it also offers experienced editors a golden opportunity to engage in the surreptitious stalking and possible subsequent hounding of people they do not like or whose opinion they disagree with.

Uncertainty over the relationship between physical and digital identities is the rationale for the surveillance ethic. And controlling identities has significantly contributed to the documented increase in the proportion of policy and regulatory discussion in relation to mainspace content. [44] The crucial fact about Wikipedia's rules is indeed that *there are more and more of them*. A study by Kittur et al. found that non-encyclopedic work, such as 'discussion, procedure, user coordination, and maintenance activity (such as reverts and vandalism)' is on the rise. [45] Conversely, the amount of direct editing work is decreasing: the percentage of edits made to article pages has decreased from more than 90 percent in 2001 to roughly 70 percent in July 2006, while over the same period the proportion of edits towards policy and procedure rose from two to ten percent. [46]

The central dynamic of Wikipedia's first phase of development was the proper formatting of crowd energy. The overwhelming majority of new policies and rules applied to editors, who needed to be controlled, not to admins. [47] A series of interviews with editors at varying levels of authority found that almost all the interviewees believed that 'the role of administrator carries with it more social authority than it ever has in the past'. [48] In contrast, it could be argued that, since admins have been entrusted with power by their peers, this power can in theory be withdrawn by the community. In reality, though they were initially meant to operate only as janitors, admins, who are never subject to reelection, have taken on increasingly greater

43. Susan L. Bryant, Andrea Forte, and Amy Bruckman, 'Becoming Wikipedian: Transformations of Participation in a Collaborative Online Encyclopaedia', in *Proceedings of the GROUP International Conference on Supporting Group Work*, Sanibel Island, FL (2005): 1-10.
44. Aniket Kittur, Ed Chi, Bryan A. Pendleton, Bongwon Suh and TedMytkowicz, 'Power of the Few vs. Wisdom of the Crowd: Wikipedia and the Rise of the Bourgeoisie', CHI 2007, San Jose, CA, 28 April-3 May 2007.
45. Aniket Kittur, Bongwon Suh, Bryan A. Pendleton and Ed. H. Chi, 'He Says, She Says: Conflict and Coordination in Wikipedia', in Proceedings of the Conference on Human Factors in Computing Systems, San José, CA, 28 April-3 May 2007, pp. 453.
46. Ibid: 455.
47. Brian Butler, Elisabeth Joyce, and Jacqueline Pike, 'Don't Look Now, But We've Created a Bureaucracy: The Nature and Roles of Policies and Rules in Wikipedia', in Proceedings of the Conference on Human Factors in Computing Systems, Florence, Italy, 5-10 April 2008, pp. 1101-1110.
48. Andrea Forte and Amy Bruckman, 'Scaling Consensus: Increasing Decentralisation in Wikipedia Governance', in Proceedings of HICSS (2008): 157-166.

responsibilities of a behavioral and editorial nature.[49] An interesting example is that 46 percent of page blocks affected by administrators of the English Wikipedia between December 2004 and January 2008 had to do with the question of whether articles should be deleted. In other words, 1,500 people out of 12 million users determine what is 'encyclopedic'.[50]

Means of domination are not limited to the crude use of blocking tools. In fact, such measures are less effective than more subtle means relying on superior project knowledge. The easiest way to defeat an opponent is to assert that their views are not authoritatively backed up by a proper source, that they are violating the sacrosanct WP:NPOV (Neutral Point of View) or WP:RS (Reliable Sources) rules. By extension, all references to editorial, stylistic, and behavioral policies and guidelines serve as battle weapons. Every single action having to do with the project seems to be distilled into a handy WP:SLOGAN, whipped out at the slightest provocation.

Some participants are evidently attracted to high-pressure situations. In 2007, a proposal (*prise de décision* or PdD) defining the use of scientific terminology or vernacular language for the classification of zoological species on the French Wikipedia generated a rancorous debate. Objectors claimed it was not procedurally sound, and it was ultimately defeated. One of the proposal's authors took a 'wikibreak' to calm down. Returning to the project two weeks later, she wrote on the administrator's noticeboard about her feeling of unease when she realized that most opponents of the decision had less than 40 percent participation in the encyclopedic part of the project (one having less than ten percent), whereas most of those who had initiated and supported the proposal had participation rates in the encyclopedia that were higher than 80 percent. There were people, she realized, who *specialized* in pages where votes were held.[51]

If pacification fails to resolve disputes, appeals to the higher authorities may be necessary. However, mounting a successful appeal to the ArbCom requires precise knowledge of the appropriate sociotechnical forms of evidence presentation. Editors are particularly expected to provide links to evidence in the shape of DIFFS. DIFFS are pages showing the difference between two versions of a page, which are automatically generated and archived each time an edit is made to a page. Experienced editors who know how to find DIFFS can thus present more convincing cases; dispute resolution on Wikipedia has increasingly become affected by the mastery of this pseudo-legal culture.

Authority and Losers

Some users are particularly likely to lose conflicts with experienced users and administrators. This section offers a brief summary of categories of participants facing structural (common and systematic) disadvantages.

49. Andrea Forte and Amy Bruckman.
50. Max Loubser, 'Wikipedia Governance: Are Administrators a "Big Deal"?', in Malte Ziewitz and Christian Pentzold (eds) *Modes of Governance in Digitally Networked Environments. A Workshop Report,* Oxford Internet Institute (2010): 21-24.
51. Cited in O'Neil, *Cyberchiefs*, p. 156.

Late Entrants

Wikipedia's editorial process, understood as the herding or disciplining of autonomous content providers, can generate bad blood in participants who feel mistreated or even humiliated by experienced editors and administrators. Unfairness or injustice can be hard to evaluate, as both sides in disputes invariably believe they are in the right, so a structural example best illustrates the issue: creators of articles set its tone. Because of a 'first-mover advantage', the initial text of an article tends to survive longer and suffer less modification than later contributions to the same article.[52] Article creators who maintain an interest in the article often put it on their watch list and, despite the project's injunctions, may experience feelings – if not of ownership – at least of heightened sensitivity and unhappiness if someone attempts to 'improve' their baby. The problem compounds when editors have access to administrative tools and/or belong to friendship cliques.

Experts

Problems may also arise when a person with intimate knowledge of the project's operations debates an outsider with poor knowledge of the site's norms but greater expertise on the contested subject. The archetypal example is that of William Connolley, a Wikipedia editor who in his day job was a climatologist at Cambridge University's British Antarctic Survey. When he attempted to correct mistakes on Wikipedia's climate change article, Connolley was accused of 'promoting his own POV [point of view] and of having systematically erased any POV which did not correspond to his own'.[53] His anonymous opponent brought him before the Arbitration Committee, where Connolley was, for a time, duly punished: he was only allowed to make one 'revert' a day, apart from cases of vandalism. This sentence had more to do with breaches of etiquette than with promoting a biased perspective, showing the consequences for respected researchers who run afoul of the project's behavioral codes.

Anonymous Editors

The regulation of the activities of vandals or propagandists who use duplicate identities is a potential breeding ground for discriminatory treatment. For example participants who have not registered on the site and instead use an IP address are more likely to be involved in semi-protected articles where disputes and insults typically occur. Casual users who add high-quality content have less chance of their edits surviving; more than half of the text inserted by 'IPs' on the French Wikipedia was deleted.[54] A growing resistance to new edits was also found in Suh et. al.'s study: the percentage of reverted edits in the English Wikipedia went from 2.9 percent in 2005 to six percent in 2008, and there was an increasing likelihood of reverts for unregistered editors or ordinary editors than edits by members of the adminis-

52. Fernanda B. Viégas, Martin Wattenberg, and Kushal Dave. 'Studying Cooperation and Conflict Between Authors with History Flow Visualisations', CHI 2004, Vienna, 24-29 April 2004.
53. See Wikipedia contributors, 'Wikipedia:Requests for arbitration/Climate change dispute', 22 March-23 December 2005, http://en.wikipedia.org/wiki/Wikipedia:Requests_for_arbitration/Climate_change_dispute#Final_decision.
54. Nicolas Auray, Martine Hurault-Plantet, Céline Poudat, and Bernard Jacquemin, 'La Négociation des Points de Vue: Une Cartographie Sociale des Conflits et des Querelles dans le Wikipédia Francophone', *Réseaux* 154 (2009): 15-50.

trative elite.[55] This disparity of treatment may be having a chilling or discouraging effect on recruitment, as the tremendous increase of participants appears to be tapering off.[56] Suh, et. al. have proposed a Darwinian explanation, whereby a diminishing amount of resources (in the form of creatable articles) results in increased competition (in the form of reversions).[57]

Authority and Critique

Wikipedia's combination of charismatic and sovereign justifications is characteristic of a new kind of organization, which I have elsewhere called 'online tribal bureaucracy'.[58] This hybridity impacts an essential aspect of online peer production projects: their capacity to generate and manage critiques. In contrast to corporate bureaus, collectivist organizations are characterized by open and frank communication, of which self-reflexivity and critique form an essential part. However, on Wikipedia, when editors lose content disputes too often, their persistent critiques of administrative authority come to be seen as disruptive, and there is decreased scope for their arguments to be heard. These self-described victims of injustice may leave the site (or are banned), often migrating to hypercritical sites such as Wikipedia Review (WR) and Encyclopaedia Dramatica (ED). Participants to these sites stereotypically allege that Wikipedia is controlled by 'cliques' or 'cabals' that manipulate the system for their own biased purposes. Anyone who dares disagree, charge these critics, is accused of 'wikilawyering', of violating consensus, and is labelled a troll.[59] An ex-editor asserted that after expressing his point of view in a message to the Wikipedia English-language mailing list he was answered with 'platitudes about rules and regulations the newcomer did not follow', rather than an examination of his case. Questioning the sagacity of an admin generated the response: '"You don't get anywhere by attacking an admin" – not even if they were wrong'. According to this ex-editor, Wikipedia adminship has a 'dirty secret': it is a 'cult, a good old boys network, a Masonic society of sorts'.[60] The accusation that Wikipedia has acquired the hallmarks of a 'cult', such as 'hierarchy, arcane rules, paranoid insularity, intolerance of dissent, and a cosmic grandiose mission'[61] has a corollary: banned editors have been victims of 'abuse'. Since WR and ED sometimes reveal personal information about editors and administrators, they have been accused of engaging in harassment and labelled as 'attack sites'; it is now forbidden to create links to them from Wikipedia.[62] As another ex-Wikipedia editor

55. Bongwon Suh, Gregorio Convertino, Ed Chi, and Peter Pirolli, 'The Singularity is Not Near: Slowing Growth of Wikipedia?', in *WikiSym'09*, Orlando, Florida, 2009.
56. Ibid; see also Felipe Ortega, 'Wikipedia: A Quantitative analysis', PhD thesis, 2009. Available at: http://libresoft.es/Members/jfelipe/phd-thesis.
57. Suh et. al.
58. O'Neil, *Cyberchiefs*, pp. 169-189.
59. See, for example, Wikipedia contributors, 'Wikipedia:How to Ban a POV You Dislike, in 9 Easy Steps', http://en.wikipedia.org/wiki/Wikipedia:How_to_Ban_a_POV_You_Dislike,_in_9_Easy_Steps.
60. Parker Peters, 'Lesson #2: Procedure vs Content, or "You didn't genuflect deeply enough"', *LiveJournal*, 18 January 2007, http://parkerpeters.livejournal.com/1195.html.
61. Sam Vaknin, 'The Wikipedia Cult', *Global Politician* (May 2010), http://www.globalpolitician.com/26423-wikipedia-cult-jimmy-wales.
62. Wikipedia contributors, 'Wikipedia: Attack Sites', http://en.wikipedia.org/wiki/Wikipedia:BADSITES.

has argued, accusations of 'cyberstalking' are a highly effective way of silencing criticism in the project.[63]

Second, legitimate internal criticism of institutional structures is made difficult by the size of the project and by the absence of a constitution spelling out important roles and processes, such as the exact powers of the charismatic co-founder or recall mechanisms for abusive authorities.[64] There have even been calls to impeach authority figures. In 2008 a Wikipedia editor put forward an admin recall proposal that was extensively discussed and tweaked on his talk page before being defeated. The proposal attracted the attention of the co-founder, who commented that any such processes were matters of deep concern, because 'people in positions of trust (the ArbCom for example) [should be] significantly independent of day-to-day wiki politics'. Since he was unaware of any cases in which a recall process was needed, the co-founder viewed the proposal as a form of 'process-creep': if there really were such an example, then the project should simply 'look harder at what went wrong'.[65] This approach to governance – keep it loose, keep it personal, seek consensus – has several consequences. Dismissing codified solutions as 'rigid' or 'bureaucratic' guarantees stasis, as there is no universally accepted way of changing the way things are and few avenues for legitimate critique. Finally, the approach's long-term viability is open to question. As Wikipedia operates following the constant reform and refinement of social norms, the issue of changing policy with an ever-increasing number of participants grows more complex. The absence of a stable policy-making system means that 'site-wide policy-making has slowed and mechanisms that support the creation and improvement of guidelines have become increasingly decentralised'.[66] Finally Wikipedia's lack of a Constitution, or of clearly defined voting procedures that would enable this Constitution to be updated, signals a danger of the project fragmenting into a multitude of smaller wikiprojects – local jurisdictions over which a limited number of participants will have a say and who may start writing rules that conflict with others.

The legitimation structure also limits the democratic and liberating potential of online critique. What participants in peer production projects such as Wikipedia seek, first and foremost, is a feeling of unity between their identities as consumers and producers, between their activities of work and play, ultimately between themselves and the project. Anything that contradicts this holistic fusion must be denounced, whether it is separated expertise or separated justice, the antithesis of online justification.[67] Therein lies online peer production's implicit critique of the wider social order. Contemporary domination bases its legitimacy on the authority of

63. Kelly Martin, 'Wikipedia's Al Qaeda', Nonbovine Ruminations weblog, 11 December 2007, http://nonbovine-ruminations.blogspot.com/2007/12/wikipedia-al-qaeda.html#comments.
64. In 2009 a proposal to limit the co-founder's arbitration role was defeated. See Wikipedia contributors, 'Wikipedia: Arbitration Role of Jimmy Wales in the English Wikipedia', http://en.wikipedia.org/wiki/Wikipedia:Arbitration_Role_of_Jimmy_Wales_in_the_English_Wikipedia
65. Cited in O'Neil, *Cyberchiefs*: 168.
66. Forte and Bruckman: 161.
67. Mathieu O'Neil, 'Critiques of Separation: Leadership in Online Radical-Prosumer Projects', under review (2011).

experts to the detriment of the legitimacy of popular representation.[68] Citizens are dispossessed of their political autonomy by a system in which technological and even economic stakes outpace their understanding and capacity for decision-making. When it operates as it should, hacker expertise and its wiki-derivatives are democratic: the only criterion is excellence, participants are equal, and deliberations and criticisms are public. It constitutes a rejection of technocracy that operates in secret and does not always seek the common good. As for collective regulation, the spirit of online projects is that the law applies to all and is open to criticism and debate, a stark contrast with non-virtual society where dominant interests laugh at the rules without ever paying a price.[69] The confused status of roles and positions induced by Wikipedia's overlapping justificatory regimes sometimes renders this spirit elusive, though its potential goes a long way towards explaining the project's enduring appeal.

Thanks to Sage Ross and to the CPOV Reader editors for comments to an earlier version of this paper.

68. Luc Boltanski, *De la Critique. Précis de Sociologie de l'Emancipation*, Paris: Gallimard, 2009.
69. Mathieu O'Neil, 'The Sociology of Critique in Wikipedia', *Critical Studies in Peer Production*, 1.1 (2011).

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THE WIKIMEDIA FOUNDATION AND THE GOVERNANCE OF WIKIPEDIA'S INFRASTRUCTURE
HISTORICAL TRAJECTORIES AND ITS HYBRID CHARACTER

MAYO FUSTER MORELL

Online Creation Communities (OCCs) are networks of individuals that communicate and collaborate via a participatory platform on the internet, aiming for knowledge-making and sharing. By framing OCCs through the notion of collective action, which often consists of large performances and elaborate outcomes, [1] one can ask how complex knowledge-making takes place and, specifically, how dispersed activities create complex products such as software code or online encyclopedias. Historically, small local communities are considered ideal forms for democratic organization and controlled decision-making; information may reach each member easily and encourage participation. In contrast with such instances of collaborative knowledge-making, OCCs are characterized by both a high quantitative jump in the number of participants and by complex outcomes, raising the question of how they organize to increase participation and collaboration to achieve their goals.

To approach OCCs, it is useful to make an analytical distinction between infrastructure and the entity that provides it – the growth-oriented platform of participation such as the Wikipedia community, where community members interact on one hand, and a generally small provision body that provides this platform on the other, such as the Wikimedia Foundation. While new technologies of information (NTIs) lower the costs of established forms of collective action, community interaction still depends on an infrastructure to provide servers, a domain name, and other important technical and legal components. As an OCC builds upon its platform, this process of technological development critically determines the OCC's politics, which is why political scientist Langdon Winner argues for the importance of incorporating all stakeholders in process analysis. [2] While previous empirical analyses of OCCs have dedicated little attention to infrastructure governance, considering it a 'backstage' question, an analysis of OCC governance must consider both the knowledge-making community, as well as infrastructure provision and their connections. [3] As this chapter will argue, incorporing infrastructure into the analysis sheds light on the changing character of OCCs and explains why some scale and remain alive, while others die.

1. Kathleen Eisenhardt and Filipe Santos, 'Knowledge-Based View: A New Theory of Strategy?', in A. Pettigrew, H. Thomas and R. Whittington (eds) *Handbook of Strategy and Management*, London: Sage, 2000, pp. 139-164; Gerardo Patriotta, *Organizational Knowledge in the Making: How Firms Create, Use, and Institutionalize Knowledge*. Oxford: Oxford University Press, 2003; Haridimos Tsoukas, 'The Firm as a Distributed Knowledge System: A Constructionist Approach', *Strategic Management Journal* 17 (Winter Special Issue): 11-25.
2. Langdon Winner, 'Do Artifacts Have Politics?', *Daedalus* 109 (1980): 121-136.
3. For a notorious exception on considering infrastructure governance for the FLOSS case, see Siobhan O'Mahony, 'The Governance of Open Source Initiatives: What Does it Mean to Be Community Managed?', *Journal of Management and Governance* 11 (2007): 139–150.

This chapter then makes an empirical analysis of the infrastructure governance of OCCs and how infrastructure provision relates to scalability, based on the case of Wikipedia and the Wikimedia Foundation.[4] I address infrastructure governance in terms of the infrastructure provider's relationship to the community, with the provider's level of openness determined by the possibility of the community intervening in its decision-making processes.

Wikipedia's unique organizational mode has attracted public debate and academic notice since its beginnings.[5] Recent attention has focused on governance in the Wikipedia community,[6] including its policy-making,[7] its decentralized character,[8] forms of conflict resolution,[9] the nature of its authority,[10] the selection of administrators and their roles,[11] and

4. Scale here refers to the number of people involved in the process.
5. Pheobe Ayers, Charles Matthews, and Ben Yates, *How Wikipedia Works and How you Can Be a Part of It,* San Francisco, CA: No Starch Press, 2008. Andrew Lih, *The Wikipedia Revolution: How a Bunch of Nobodies Created the World's Greatest Encyclopedia*. New York, NY: Hyperion, 2009.
6. Piotr Konieczny, 'Governance, Organization, and Democracy on the Internet: The Iron Law and the Evolution of Wikipedia*',* *Sociological Forum* 24 (March 2009): 162-192. Shane Greenstein and Michelle Devereaux, 'Wikipedia in the Spotlight', Kellogg Case Number: 5-306-507, Evanston, IL: Kellogg School of Management, 2009, http://www.kellogg.northwestern.edu/faculty/greenstein/images/htm/Research/Cases/Wikipedia_RVFinal_0709.pdf. Nathaniel Tkacz, 'Power, Visibility, Wikipedia', *Southern Review* 40 (2007): 5-19.
7. Travis Kriplean, Ivan Beschastnikh, David W. McDonald, and Scott A. Golder, 'Community, Consensus, Coercion, Control: CS*W or How Policy Mediates Mass Participation', GROUP'07, ACM Conference on Supporting Group Work, Sarubel Island, Florida, 2007. Max Loubser and Christian Pentzold, 'Rule Dynamics and Rule Effects in Commons-Based Peer Production', *5th ECPR General Conference*, Potsdam, Germany, 10-12 September 2009. Fernanda Viégas, Martin Wattenberg and Matthew Mckeon, 'The Hidden Order of Wikipedia', *Online Communities and Social Computing* (2007): 445-454.
8. Andrea Forte and Amy Bruckman, 'Scaling Consensus: Increasing Decentralization in Wikipedia Governance', *Proceedings of the 41st Annual Hawaii International Conference on System Sciences*, Waikoloa, Big Island, HI: IEEE Computer Society, 2008: 157-167. Thomas Malone, *The Future of Work: How the New Order of Business Will Shape Your Organization, Your Managements Style and Your Life,* Cambridge: Harvard Business Press, 2004.
9. Aniket Kittur, Ed Chi, Bryan Pendleton, Bongwon Suh, and Todd Mytkowicz, 'Power of the Few vs. Wisdom of the Crowd: Wikipedia and the Rise of the Bourgeoisie', Proceedings of the 25th Annual ACM Conference on Human Factors in Computing Systems (CHI 2007), ACM: San Jose, CA, 2007. Sorin Adam Matei and Caius Dobrescu, 'Ambiguity and Conflict in the Wikipedian Knowledge Production system', *56th Annual Conference of the International Communication*, 19th-23rd June, 2006, Dresden, http://matei.org/ithink/ambiguity-conflict-wikipedia/.
10. Andrea Ciffolilli, 'Phantom Authority, Self-Selective Recruitment and Retention of Members in Virtual Communities: The Case of Wikipedia', *First Monday* (December 2003), http://firstmonday.org/htbin/cgiwrap/bin/ojs/index.php/fm/article/view/1108. Mathieu O'Neil, *Cyberchiefs: Autonomy and Authority in Online Tribes*, London, UK: Pluto Press, 2009. Felix Stalder and Jesse Hirsh, 'Open Source Intelligence', *First Monday* 7 (June 2002), http://firstmonday.org/htbin/cgiwrap/bin/ojs/index.php/fm/article/view/961/882.
11. Moira Burke and Robert Kraut, 'Mopping up: Modeling Wikipedia Promotion Decisions', in Bo Begole and David W. McDonald (eds) Proceedings of the 2008 ACM conference on Computer supported cooperative work, San Diego, CA: ACM, 2008, pp. 27-36.

leadership.[12] While a focus on community governance is undoubtably important, it does not address the institutional dimension that determines Wikipedia's current form, particularly the governance of its infrastructure by the Wikimedia foundation. Wikipedia's organizational form is not only characterized by its online communities, as these previous analyses highlight, but also on the contrasting form of infrastructure governance by the Wikimedia foundation. Considering the Wikimedia Foundation therefore reveals the hybrid character of the Wikipedia ecosystem as a whole.

This chapter presents an historical account of the governance of Wikipedia's infrastructure, distinguishing four distinct periods and related models, including how its foundation functions at present. It draws from an online ethnography (e-lists and wikis), participant observation at meetings of Wikipedians and the foundation's headquarters, and 32 interviews with Wikipedians of several nationalities.[13] In doing so, it links the evolution of the infrastructure governance with the scaling of the community over time. The second part of this chapter considers the relationship (and tensions) between the foundation and the larger Wikipedia community. Along the way, comments illustrate the specificities of this relationship in Wikipedia in contrast to models of corporate infrastructure provision.

Wikimedia's Evolution of Governance: Creation of a Foundation

Several governance phases can be distinguished in Wikimedia's evolution: a founder-driven model; a community-driven model after the creation of a volunteer-run non-profit foundation; a traditional and professional model; and, finally, recent developments and experimentations towards a global, participatory model.[14]

January 2001: From a Founder Driven to a Community Driven Model

In 2000, Jimmy Wales, an American entrepreneur in search of new online business models, decided to create a free encyclopedia. Wales was homeschooled from an alternative curriculum, and this fed his dream to make a free encyclopedia as an educational resource facilitating access to knowledge. He first created Nupedia, a freely accessible online resource with articles produced in a traditional expert-based fashion, which, according to Wales, 'required a large effort without many results'.[15] The Nupedia team, mainly composed by Wales and Larry Sanger, then discovered wiki technology as a useful infrastructure for collaborative writ-

12. Joseph Reagle, 'Do as I Do: Authorial Leadership in Wikipedia', *WikiSym'07,* Proceedings of the 2007 International Symposium on Wikis, New York: ACM, 2007: 143-156.
13. The e-list analyzed was the Foundation_l and the wikis the English, Catalan, and Italian. Participant observation at meetings took place at Wikimedia Italia's annual meetings (Rome, September 2007 and September 2009); Meet up at Palo Alto (November 2008); and meet up at Boston (October 2009); and the annual main meeting of wikipedians, named Wikimania (Buenos Aires, August 2009) and at the Wikimedia headquarters (December 2008). Data collection was carried out from July 2008 to August 2009.
14. This following section is mainly documented via a review of Wikipedia's history drawing on existing sources (Ayers, Matthews and Yates, 2008; Lih, 2009), the history of Wikipedia as it is presented on Wikipedia, and interviews with Wikipedians.
15. J. Wales, Interview, 19 December 2008.

ing.[16] Inspired by the Free Software Movement, Wales consulted Richard Stallman (inventor of Free Software), and the project attracted people hoping to expand the Free Software model to other areas of knowledge creation.

However, Wales emphasized that he foremost wanted a free encyclopedia, and the community-driven nature of the project was simply 'out of necessity'.[17] Wikipedia was born in the context of economic crisis in the technology sector, and Wales could not find venture capital to support the project. In his own terms:

> Wikipedia is a child of the dot.com crash. [...] When Wikipedia began to grow if I would have been able to go and get some venture capital funding and have money to run it, then I would have thought very differently about these issues [...] This innovation of really pushing all of the decision making into the community was just because there was no one else to do it.[18]

Little was planned and defined at the beginning of the project. It began as an experiment, as did the site's governance structure. In fact, during the first stage of the project, it was legally part of the for-profit Bomis company founded by Wales.[19]

This first stage can be characterized as 'leader–driven', with the founder as driving force behind the project around whom a community of supporters congregates, evoking the benevolent dictator model characteristic of FLOSS projects.[20] The force of Wales' personality defined and shaped the early Wikipedia community and the social norms and rules remaining at the core of the project.[21] For instance, Wales strongly disliked personal attacks (common in other online communities), so he advocated against an aggressive environment. This resulted in the 'don't bite the noobs' and a welcome policy towards 'newbie' contributors. Concerning rules, Wales also defined the neutrality policy specifying that Wikipedia should not take a stand on controversial issues but just report on them. The neutrality policy remains central today.

With a growing amount of participation and interaction, a community dynamic emerged and defined its own rules and norms, becoming more depersonalized and separate from Wales. This evolution can be found in similar projects, such as other FLOSS communities. According to Viégas et. al., as they grow, they also tend to invest more effort in defining their own

16. Wiki technology was created in 1995 by Ward Cunningham and facilitates the editing of web content. See Bo Leuf and Ward Cunningham, *The Wiki Way: Quick Collaboration on the Web*. Boston, MA: Addison-Wesley Longman, 2001. There is a controversy in the literature and in Wikipedia community regarding whether it was Wales or Sanger who had the idea of adopting Wiki technology for Nupedia (Lih, 2009).
17. Op. cit.
18. Ibid.
19. Ibid.
20. Ross Gardler and Gabriel Hanganu, 'Benevolent dictator governance model', *OSS Watch,* http://www.oss-watch.ac.uk/resources/benevolentdictatorgovernancemodel.xml.
21. Ayers, Matthews, and Yates, 2008.

decision-making and governence politicies.[22] Additionally, O'Mahony's analysis of the GNU/Linux Debian community singled out a similar transitional stage from founder-driven to the development of a community governance form.[23]

This first stage ended with the creation of a non-profit foundation. Three significant factors contributed to this development of a community dynamic. First, the Spanish fork exposed the need for formalization and clarification in governance structure. The message that Sanger was considering advertisements in Wikipedia began to circulate,[24] and the uncertainty it created, as well as Wikipedia's current state of major dependence on the co-founders, resulted in part of the Spanish community's split or 'fork'.[25] Second, as Wikipedia became more popular and participation increased, maintenance costs grew. As an interviewee said, 'Wales cannot pay the bills forever'.[26] He needed a tool to sustain the project. Finally, Wales appreciated Wikipedia's great potential as an educational tool and wanted to preserve it as a philanthropic project.[27] These elements led to the creation of a non-profit foundation with Wales donating the infrastructure.[28]

June 2003: The Community Sets Up a Volunteer-run Foundation

With a large, vibrant community and increasing popularity, the Wikimedia Foundation began in Florida, U.S., in June 2003, run by volunteers. It operated as a fundraising tool to sustain the infrastructure, and it legally owned both the infrastructure and trademark, while the community remained the owner of the content as specified in Wikipedia's license. This distribution of ownership is key, even though it was not Wikimedia's innovation but merely the continuation of a culture that had emerged in previous online communities.[29] Its distribution of ownership is also reinforced by the U.S. legal system, in order to safeguard free expression on the internet since providers are not held responsible for content posted by users.[30]

Structurally, the foundation was directed by a board of trustees, and the community could intervene in the board elections. Parallel to the foundation's creation, national chapters with local members were created in other places around the world. However, the Wikimedia Foundation has a centralized infrastructure so that all projects (even in other languages) are under the U.S. foundation's roof. The U.S. foundation owns all servers and is legally responsible

22. Viégas, et. al., 2007.
23. O'Mahoney, 2007.
24. Lih, 2009.
25. Forking is based on shifting content to another platform in order to develop a different direction, in this case to make sure that advertisements would not be introduced.
26. P. Ayers, Interview, 14 November 2008.
27. Wales.
28. The costs of Wikipedia were mainly servers and bandwidth. Wales donated the servers, logos, and project domains to the non-profit foundation.
29. Harold Rheingold, *The Virtual Community: Homesteading on the Electronic Frontier,* Reading, MA: Addison-Wesley, 1993.
30. The U.S. legal system has a set of constitutional and statutory protections that make it harder to hold the publisher responsible. It freed service providers from legal liability over content that they did not originate or develop.

for the operation of the projects. The Wikimedia Foundation's centralized structure was also shaped to take advantage of the U.S. legal system for reasons stated above. As Mike Godwin, who served as general counsel for Wikimedia, put it: 'One of the things that we've tried to do is to structure ourselves so that, if Europeans are going to sue somebody over Wikipedia, they're going to have to come here, where the laws are a little more protective of us'. [31]

Thanks to the site's popularity, more and more people found Wikipedia through Google search results and started contributing content. [32] In 2003, as Phoebe Ayers, a Californian Wikipedian, put it: 'a key new generation of wikipedians, called the crooked wave, started participating and became the core of the project'. [33] Almost all business took place through online channels until 2004 when local 'meet ups' of Wikipedians began. In August 2005, an international meeting of Wikipedians, called Wikimania, was organized for the first time in Frankfurt, where many Wikipedians first learned of the foundation.

As mentioned, during this period the foundation was run by volunteers and experimental in spirit, in line with the community's organizational logic. However, as Wikipedia grew, the work required to maintain the servers, cover costs, and solve legal questions gradually increased. To cover these needs, the foundation began fundraising and hiring staff. However, it was an unsatisfactory situation. Aspects such as server management were not solved optimally, and the site went down with relative frequency. [34] Additionally, it became apparent that the foundation was not scaling with the community's needs, while some chapters, such as Germany's, gained in importance. [35] Some of those interviewed described the foundation during this period as an informal 'club' making arbitrary decisions. Others said that the foundation still depended too much on Wales. Furthermore, being based in Florida, where Wales lived, was 'a little bit out of the mainstream' as most emerging ventures were concentrated in the San Francisco Bay area. [36] Suspiciousness and anxiety surfaced in the community: 'The Foundation's relationship with the community was more fraught, tenser' said Mike Godwin in his interview. [37]

Some claimed the foundation needed repairing and improvement by taking the professional path, though others did not share this view. With the community's growth, demands increased along with the foundation's work. In 2007, voices in favor of the 'professionalisation' of the foundation gained influence. The board decided to contract a specialist executive director external to the community and to move the headquarters to San Francisco.

31. M. Godwin, Interview, December 15, 2008.
32. Lih, 2009.
33. Ayers.
34. Ibid.
35. Ayers, Matthews and Yates, 2008; Lih, 2009.
36. Godwin.
37. Ibid.

2007: From Voluntary-run Foundation to Traditional and Professional Foundation

The second half of 2007 saw the foundation's restructuring towards 'professionalism' with a long-term strategic perspective aimed at stability, sustainability, and growth. In this new phase, the qualities characterizing Wikimedia foundation's governance structure mentioned by interviewees were 'maturity', 'assertiveness', 'seriousness', 'professionallity', 'coherent', and 'stable'. [38] Considering its new surroundings in the San Francisco Bay area, this appears surprising. In Silicon Valley, the new 'managerial' values driving the Web 2.0 innovations in companies such as Google and Facebook were those of 'fun', 'youth', and 'enjoyment' and the workplace as a 'play-ground'. [39]

The guidelines of the foundation's restructuring tried to strike a balance between communication and transparency with the community and receiving community input, and the need for experts and a professional knowledge base to perform functions efficiently, such as with technical maintenance or legal protection. Another guideline was to sharpen the division of tasks between the foundation and the community. The foundation reinforced its role as a provider of sustainable and solid infrastructure, while reducing its interventions in community content creation that was clearly left outside the foundation's functions.

In this 'professional' stage, the staff increased to more than 40 employees. Based in an office in San Francisco, most of the employees worked full time. They were dedicated to technical maintenance, legal issues, fundraising, communications, and administration. [40] Some had a community background, but often employees had no previous relationship with Wikimedia. Like most traditional foundations, the foundation staff was organized hierarchically and based on a contractual relationship, giving the foundation final authority to achieve certain goals and make quick decisions. Following legal regulations, the executive director was in charge of directing the foundation and was selected by the board to act under board supervision and follow its mandatory demands. The board revised its composition in 2008, based on the formalized need to have members with professional backgrounds or with special profiles. The board was not only based on a democratic representational character of the community interest, it was also constituted to gain acknowledgement and expertise on action and decision-making.

The foundation also formalized its relationship with chapters. For example, the foundation gained more control through the use of the trademark and domain names, and the chapters collaborated with it to help fundraise to cover infrastructure costs. With a 7.5 million dollar annual budget, the foundation also created a plan for business development. At this stage, the increased costs linked to the site's popularity, the investment done to assure infrastructure robustness, and the costs to maintain the foundation itself resulted in a relatively substantial budget. Wales's role as platform provider and the foundation's leader was also reduced, as will be detailed below.

38. Ibid.; P. Ayers, Interview, November 14, 2008; K. Wadhwa December 16, 2008; Wales, Interview, December 19, 2008.
39. Don Tapscott and Anthony Williams, *Wikinomics: How Mass Collaboration Changes Everything*, New York: Portfolio, 2007.
40. Wikimedia Foundation, 'Staff – Wikimedia Foundation', http://wikimediafoundation.org/wiki/Staff.

These changes represent an ambivalence regarding the foundation's relationship to the community. In one sense, it lost 'organic' contact because it no longer followed the community's organizational form and because half of the foundation staff and some board members were not originally part of the community. However, the foundation won contact with the community because of its increased capacity to respond coherently to community requests, release reports of its activities, and increase coordination with the chapters. Some applauded the shift towards professionalization because 'things get done' [41] while previously this was not the case. The foundation's reputation increased, but suspicion and uncertainty also surfaced as the changes generated many questions about the foundation's expanded boundaries.

2009: From Traditional and Professional to Global and Participatory

The last stage is characterized by the major internationalization and decentralization of the foundation, along with its experimental shift to integrate more community participation in its operations.

In recent years, Wikipedia has increasingly internationalized. With an international goal since its inception, the first phase of internationalization took place through the emergence of linguistic projects. A transnational network of locally rooted organizations or chapters then grew to support these efforts, based on country rather than themes or linguistics. Furthermore, the process of transnationalization followed official geopolitical distribution of global activities, as a large majority of the chapters reproduced the same geopolitical map as national-states and their territorial conflicts. This process of transnationalization was very formal in nature. Instead of a group of editors or fans of Wikipedia gathering as a support group, as with Linux user groups or the Creative Commons support groups, [42] new chapters were created around a legal entity and had to be approved by Wikimedia's Chapter Committee to be officially recognized by the foundation. [43] The foundation also required its chapters to sign formal agreements for the use of the name and logo. This formal and traditional territory-based internationalization may explain why the Wikimedia chapters have grown slowly in comparison to the Wikipedia language projects. Today there are 257 linguistic Wikipedia communities, 25 of them with high participation but only 27 chapters. [44] According to Dobusch, Wikipedia also grew slowly in comparison to Creative Commons. [45] Even though its transnational spread was comparatively slow, this stage is also characterized by the international expansion of Wikipedia governance, and chapters increased collaboration with the foundation to fundraise or promote Wikipedia.

41. Godwin.
42. Leonhard Dobusch, 'Different Transnationalization Dynamics of Creative Commons and Wikimedia', Governance Across Borders, 15 June 2009, http://governancexborders.wordpress.com/2009/06/15/wikimania-preview-2-different-transnationalization-dynamics-of-creative-commons-and-wikimedia/.
43. Wikipedia contributors, 'Wikipedia Chapters – Meta', http://meta.wikimedia.org/wiki/Wikimedia_chapters.
44. ibid; 'Wikipedia – the free encyclopedia', www.wikipedia.org.
45. Dobusch, 2009.

Furthermore, the chapters gained terrain in their formal foundation governance role. For example, two seats in the Wikimedia Foundation board of trustees are assigned to chapter representatives.

A second characterization of this stage is the experimental nature of a community-driven foundation. With the consolidated foundation functioning well through professionalization, it opened itself to experimentation. In this regard, the *raison d'etre* of this stage can be found in establishing mechanisms for community-driven agency as the foundation adopted a participatory consultation process for the definition of its strategy. According to its coordinator, Eugine Eric, participative strategic planning was linked to the larger dimensions of the community. In his terms: 'The community is so large that we don't know where we are and we have to ask our self: the goal is to explore where we are now, where we should go, and how we should get there'. [46] Both the foundation's internationalization and the formalization of participative mechanisms majorly reduced the historical power assigned to the founder. Wales remains a charismatic leader and has a seat on the board, but he has much fewer permissions in community governance. [47]

As Wikipedia became one of the 10 most visited websites in the world and one of the largest online communities, the form adopted for the governance of infrastructure provision changed significantly. Each phase marks a realignment of the relationship between the community and the foundation. Most prominently, as the Wikimedia ecosystem – the foundation and the communities – matured and stabilized, it resulted in a hybrid form adopting two different organizational and democratic logics. The Wikimedia Foundation adapted a traditional, representational democratic logic, while the community remains an innovative, elaborate, organizational model. The foundation is based on a contractual relationship with the staff, while the community relies on voluntary self-involvement. The foundation runs according to an obligatory hierarchy and a representational board, while the community relies on openness to participation, a volunteer hierarchy, and (mainly but not always) consensus decision-making. The foundation bases its power from a centralized base of coordination and long-term planning in San Francisco, while the community is decentralizaed and serendipitous.

The traditional organization model providing infrastructure is also Wikipedia's interface to the external world, and it allows the Wikipedia community to operate with other traditional entities, such as legal systems. Importantly, the organization's hybrid character has facilitated the scaling of the Wikipedia community. The following section first presents the relationship between these two diverse organizational forms, then the tensions related to Wikipedia hybridism. This will allow us to understand the operations of different organizational forms, how democratic logic is built, and the tensions associated with it. To conclude, I will discuss the the hybrid character of Wikipedia in detail.

46. Eric.
47. Wikipedia contributors, 'Wikipedia – Role of Jimmy Wales', http://en.wikipedia.org/wiki/Wikipedia:Role_of_Jimmy_Wales.

II. The Wikimedia Foundation Now:
Openness to Community Involvement in Infrastructure Governance

The foundation's relationship with the community can be analyzed in terms of open versus closed involvement in infrastructure provision.[48] This continuum refers to the community's potential to intervene in decision-making on the infrastructure provided by the foundation and to the transparency of the foundation towards the communities it serves. We can distinguish three dimensions of openness: first, *structural points* that link the foundation and the community; second, *communication* between the foundation and the community; and third, overlapping or *collaboration*.

First, the *structural* relationship between the foundation and the community refers to the foundation's composition. The board of trustees is the foundation's ultimate governing authority. Three members of the board are community members chosen by annual community elections and are elected by community members who completed more than 600 edits in the three months prior to the respective election. Around 3,000 community members participate every year in these proceedings. Additionally, another two members of the board are selected by chapters. In total these five members represent the community interests in the foundation. Additionally, one board position is dedicated to the 'community founder' seat.[49] Having a community background is valuable among foundation staff, and, according to the Foundation website, around half of the staff came from the community.[50] Finally, the network of chapters associated with the foundation are composed of community members.

Secondly, another dimension of openness is the *communication* between the foundation and the community. Among the foundation's guiding principles is community input, responsiveness, and transparency to community concerns.[51] According to the board's chair, Michael Snow, the foundation tries to avoid 'Foundation versus the community' and achieve harmony by listening and consulting with its constituents. Eugene Eric, a member of the foundation's staff and a strategic planning coordinator, writes that it 'owes transparency to the community [...] and to try to experiment new ways through the new technologies of information to be transparent'.[52] The foundation reports to the community and the external world by regularly releasing information (reports, a blog, etc.) and with presentations during Wikimania events.

Additionally, the foundation collects the community's input to determine its agenda. Through community e-lists, wiki, and IRC, the board and staff listen to the community needs and concerns, get ideas and impressions, and ask advice to solve questions. Furthermore, a mailing list provides a space where interested community members get involved in foundation-related issues and can meet and discuss with the board and the staff.[53] The board and the staff also try to verify community consensus before making decisions and to anticipate community reactions before implementing changes, often using formal consultations (i.e., putting fund-raising banners online before publication so that people can comment on them before a front page debut). There is also a practice of informal consultation with select community volunteers.

48. Other main axes on infrastructure governance is the level of freedom and autonomy *versus* dependency on the infrastructure. However, due to the space constraints, those will not be presented in this article.
49. Wikipedia contributors, 'Board Elections – Meta', http://meta.wikimedia.org/wiki/Board_elections; Wikipedia contributors, 'Board elections/history – Meta', http://meta.wikimedia.org/wiki/Board_elections/history.
50. Wikimedia Foundation, 'Staff – Wikimedia Foundation', http://wikimediafoundation.org/wiki/Staff.
51. M. Snow, Interview, 19 December 2008.
52. Eric.

Furthermore, the foundation has a volunteer coordinator who is the first point of contact between the board, staff, and community.[54] In the words of Cary Bass, volunteer coordinator at the foundation:

> Before we make any decisions we get some of the community involved with the decisions that we make. We're discussing with people from the start [...] So when it happens we already have community members who have been involved in the process who understand. So there's people in the community already to help resolve whatever conflicts are going on, when the conflicts happen.[55]

However, interviews with staff members suggest there is more or less communication depending on the area and staff profile. For example, funding staff members mentioned that they have little direct communication with community people,[56] while daily communication is part of the routine of the technical department or press communications.[57]

Some also called for the development of a more elaborate mechanism to obtain the community's views on foundation changes and to improve its community-driven nature overall. In 2009, the foundation decided to experiment with participatory strategic planning, setting up a participatory consultation so that the community could define priorities for the following five years. According to Eugene Eric, planning was well received by the community and raised considerable levels of participation.[58] Participative strategic planning can be seen as an innovative form for organizations in general.

A third aspect of the foundation's relationship with the community is that they *collaborate* to develop some functions. One feature of community-driven governance, particularly in contrast to corporate governance, is the cooperation and mutual support between the providers

53. T. Finc, Interview, November 20, 2008.
54. The tasks of the volunteer coordinator at the foundation include facilitating the distribution of voluntary resources in the foundation and in the community. In his own words *'when people need people I am there* to facilitate the handling of complaints sent by Wikipedia readers to the foundation, to solve legal copyright or personal privacy violations in the content, and finally, to contribute to maintaining a positive and *fun* environment'. (C. Bass, Interview, 24 November 2008).
55. Bass.
56. R. Montoya, Interview, 17 December 2008; R. Handler, Interview, 17 December 2008.
57. Glenn; J. Walsh, Interview, 10 November 2008.
58. Eric.

and the community, creating an overlap that makes distinctions between the provider and the community difficult to establish. A visualization technique was used during interviews, and interviewees were asked to 'draft' the relationship between the foundation and the community. All highlighted that the foundation is very small in comparison to the community but that their relationship is 'overlapping'.[59] This is different from a service-oriented model often found in corporate governance, which is often closed to community involvement.

The overlap is driven by several aspects. First, while most of the volunteers concentrate their efforts on content development, there are other tasks such as organizing the annual Wikimania and local meet-ups among Wikipedians doing outreach and taking care of the chapters. In the words of Phoebe Ayers, organizer of several Wikimanias: 'It's almost like a really separate volunteer project and there are volunteers who only volunteer on Chapter governance or on Foundation issues, not on content'.[60] These types of 'non-content' volunteers generally work more in collaboration with the foundation than the 'content' volunteers. They may, for instance, work at the foundation in San Francisco on clearly foundation-based tasks such as translating the fundraiser banner for annual drives.[61] Second, some issues, such as press relations and technical needs, are discussed in working groups involving both foundation staff and community volunteers, who are integrated to the point that it is difficult to establish who is who.

A final remark on the overlap between the foundation and the community is that both follow the same mission, which emerges as an important driving factor in this relationship as a 'we' identity forms.[62] The mission establishes the parameters of the process: the foundation is not subject to any community requirements, except for those consistent with the mission.[63]

In sum, the foundation is relatively open to community involvement. Even if the foundation and the community are based on different organizational forms, the Wikipedia ecosystem creates a combination of these diverse functions. It is worth mentioning that the three aspects of this relationship presented (structure, communication, and collaboration) are not present in the service model of most media corporations, normally characterized by structural closeness of the community with the platform, minor communication between the corporation and the community, and no areas of overlapping or mutual collaboration. In contrast, Wikipedia could be characterized as a *participatory governance infrastructure* that is more community-driven.

Tensions Associated with the Hybrid Character of the Wikipedia Ecosystem

The hybrid character of the Wikipedia ecosystem does not lack tension, and the foundation's relationship with the community is a contested issue. Some community volunteers see the foundation as pointless and vampiric, making money from volunteer work. Others see it in a

59. Other words mentioned were: crossover, inflowing and intertwined.
60. Ayers.
61. Bass.
62. This seems to be consistent with respect to Jimmy Wales as mission-keeper.
63. E. Möller, Interview, 15 December 2008.

variety of positive roles: a community tool, an adult protector, the community's peer in achieving its mission, or as a leader that should intervene in community issues. The major question, however, concerns whether the foundation should take a proactive or quasi-absence stance when governing community issues.

The relationship between the foundation and the community is also debated in terms of the differences in its open character.[64] In principle, participation in the platform follows the guidelines of 'radically' open; 'anyone can edit a wiki' is repeated frequently at the site. The foundation in contrast is not totally open to community participation, which must follow the series of filters mentioned.

It may seem at first glance that conflicts involve staffing or professionalism, but not one of the 31 interviewees mentioned any opinion on this matter. Instead, the tension seems to come from the foundation's role outside of content development. In the words of Kim Bruring, a Dutch Wikipedian: 'Everybody agrees on the question that the Foundation has to take care of the servers. But then there are several views on other issues. There is a tension over where to situate the Foundation from a more active role to a less active one'.[65] Some of the interviewees fear the expansion of the foundation could go too far and ask if the foundation's working system will expand beyond organizing on a community basis. For example, some interviewees expressed concerns about contracting staff to solve issues that were already solved well by volunteers, such as Wikimedia organizing. In Phoebe Ayers' terms: 'I have always had [the approach], the more volunteers, the better. If you want to step up and do something, that's good! [...] Other people have said, we really needed staff to do this work, so it would get done'.[66]

Additionally, the foundation's openness to community participation involvement clashes with its representative character. Its board meetings, for instance, are open only to the community-elected board members. Additionally, what happens when the decisions are implemented by the staff? Would it be convenient to have volunteers help them? Related is that the community follows a democratic approach in which 'who does, decides', while the Foundation's board makes decisions and staff implement them – decisions and actions are separate. If volunteers contribute to implementation, they may do so but without necessarily changing the decisions of the board.

Other specific issues of contention in the Foundation's relationship with the community include how the Foundation generates income to sustain costs. At present Wikipedia covers most of its annual budget with an annual fundraiser.[67] A banner asking for donations is visible for months on every Wikipedia page. Resistance to the ads stems from two concerns: 'purity' or freedom of knowledge without any element that could distract reader attention, and the revenue created via the community's work. Wikimedia's 2010 fundraiser brought in 16

64. These tensions seem to be more prominent since the professionalization of the foundation.
65. K. Bruring, Interview, 28 August 2009.
66. Ayers.
67. Wikimedia Foundation, http://wikimediafoundation.org/wiki/Home.

million dollars despite waves of criticism and backlash from the community over what was perceived as advertising, and the ubiquitous face of Wales across Wikipedia. [68]

Conclusions

In contrast to previous writing on OCCs, this chapter incorporates an analysis of infrastructure provision to analyze OCC governance models. Considering the Wikimedia Foundation reveals the hybrid character of Wikipedia ecosystem and provides insights on why Wikipedia has scaled over the time.

Regarding community growth over the years, Wikipedia's forms of infrastructure provision have changed. The costs associated with sustaining infrastructure for a growing community have increased together with external requirements, such as legal issues, and these contingencies, together with a desire for a clear governance structure and control by the community, led to the creation of a legal entity, the foundation, which was first volunteer-run then traditionally organized. The community's increased size and its internationalization led, in its final stage, to introspection in order to know the community better and communally define the foundation's strategy. In sum, Wikipedia adapted organizationally to changing needs as it grew over time, resulting in a combination of organizational logics depending on the requirements of each stage. This hybrid character, however, has not been able to mollify a number of tensions between the foundation and the community.

In contrast to other models of infrastructure governance in service-oriented corporations, Wikipedia has an open infrastructure provision and a close relationship between the infrastructure provider and its communities. In corporations, the relationship is based on a service provided by an external source, but the Wikipedia Foundation is open to community involvement in community governance in terms of structure, communication, and collaboration. This distinction therefore sheds light on different types of OCC organizations.

The Wikipedia ecosystem's hybridism helps explain its community's ability to scale and, in light of a comparative analysis of 50 cases, shows that the hybrid cases have the most vitality and promise as they were able to scale over time. Non-hybrid forms (of the 'informal' type seen in the self-provision model) [69] are less capable of scaling and have a higher ratio of death over time. [70] Previous studies on FLOSS cases have confirmed that the larger OCCs

68. Phillippe Beaudrette, '2010-2011 Fundraiser draws to a close', http://blog.wikimedia.org/blog/2011/01/01/2010-2011-fundraiser-draws-to-a-close/, and Wikipedia contributors, 'Fundraising Banners Continue to Provoke', Wikipedia Signpost, http://en.wikipedia.org/wiki/Wikipedia:Wikipedia_Signpost/2010-11-29/In_the_news.
69. The self-provision model is based on openness to community involvement in infrastructure provision to the point that it is difficult to distinguish between providers and the community. The self-provision model is informal in its infrastructure provision organizing; it seems ill-adapted to the proper organization of the infrastructure.
70. Mayo Fuster Morell, *Governance of Online Creation Communities: Provision of Infrastructure for the Building of Digital Commons*. Diss. European University Institute. Florence, Italy, 2010.

follow hybrid infrastructure governance forms. [71] Time will tell if the success of hybridism is a transitional moment or a sustainable form in the emerging digital environment. In Bimber's view, the consequences of this hybridization remain to be seen, but it sheds light on the limits of extreme post-bureaucratic political association. [72] However, as Clemens states, 'hybrid forms suggest possibilities of innovation but [hybrid forms could also be] problematic mutations or simply sterility'. [73] More than hybridism per se, the appropriate combination of strategies seems to lead to scalability.

Finally, Wikipedia provides a very interesting case in terms of whether or not Wikipedia confirms sociologist Robert Michels' Iron law of oligarchy (1962) [74] and social scientist Mancur Olson's claims (1965) that formalization is a source of success in collective action. [75] In terms of the organizational strategy for Wikipedia's infrastructure provision, the hybrid character or equilibrium of formal and informal organizing seems to be the essence of its ability to scale, much more than the mere adoption of formalization paths in Olson's terms. Even if Wikipedia were to evolve towards a more formal organizational strategy, formalization is not a one-way evolution. The cross-temporal analysis of Wikipedia indicates that once some provision functions were stabilized and guaranteed, the Wikimedia Foundation entered a stage of major experimentation. In this regard, Wikipedia only followed a formalization path up to a certain point and then returned to informal experimentation.

71. Giovan Francesco Lanzara and Michele Morner, 'The Knowledge Ecology of Open-Source Software Projects', *19th EGOS Colloquium*, European Group of Organizational Studies, Copenhagen, 3-5 July 2003. Giovan Francesco Lanzara and Michele Morner, 'Making and Sharing Knowledge at Electronic Crossroads: The Evolutionary Ecology of Open Source', paper presented at the Fifth European Conference on Organizational Knowledge, Learning and Capabilities, Innsbruck, Austria, 2004. http://www2.warwick.ac.uk/fac/soc/wbs/conf/olkc/archive/oklc5/papers/j-3_lanzara.pdf
72. Bruce Bimber, *Information and American Democracy: Technology in the Evolution of Political Power*. Cambridge, UK: Cambridge University Press, 2003.
73. Elizabeth Clemens, 'Two Kinds of Stuff: the Current Encounter of Social Movements and Organizations', in G. F. Davis,. D. McAdam, W. R. Scott, and N. Z. Mayer (Eds.), *Social Movements and Organization Theory,* New York, NY: Cambridge University Press, 2005, p. 353.
74. Robert Michels, *Political Parties: A Sociological Study of the Oligarchical Tendencies of Modern Democracy*. New York: Free Press, 1962.
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CULTURAL TRANSFORMATIONS IN WIKIPEDIA OR 'FROM EMANCIPATION TO PRODUCT IDEOLOGY'
AN INTERVIEW WITH CHRISTIAN STEGBAUER

CHRISTIAN STEGBAUER AND **MORGAN CURRIE**

Christian Stegbauer is a German sociologist and author who lectures and researches at the Institute for Social and Policy Research at the Johann Wolfgang Goethe University, Frankfurt. This interview was conducted over email and discusses Stegbauer's 2006 research that tracked the increasing diversification of Wikipedia's internal social structures.

Morgan Currie: Your research on Wikipedia traces the mutually transformative relationship between users' officially proscribed roles in Wikipedia – admins and the like – and the development of the site's overarching ideologies since it began. To provide some context, what would you define as the original driving ideology behind Wikipedia?

Christian Stegbaur: The original ideology driving Wikipedia I call 'emancipation ideology', and it can be said two main forms. First is the key concept that everyone can participate: if everyone were to contribute a part of her knowledge, so the idea goes, it would result in a compendium of 'global knowledge'. As we all know, this participatory model completely revolutionizes the production of reference books, [1] which up until now operated on the principle that only trusted and selected experts produced encyclopedic content. Wikipedia turns this process completely upside down and is clearly positioned against elevating 'expert knowledge'.

Its administrators, for instance, 'have no special position in comparison to other users – their voices count just like any other'. [2] This situation resembles free software movements' 'bottom-up' design for content. Drawing from an architectural model, Eric Raymond points out its similarity to bazaars. While cathedrals follow a singular and centrally monitored construction plan, bazaars are made up of myriad vendors, with each supplier fulfilling a small part of the demand. The multi-sectioned bazaar can often accomplish more than the cathedral, because consumers decide the components' utility for themselves and adapt quickly. [3]

Secondly, and perhaps the most important and explicit part of emancipation ideology, was proclaimed by Wikipedia founder Jimbo Wales at the first international Wikimania conference in Frankfurt in 2005. [4] There he claimed that extant knowledge should be available to all without any barriers to accessibility. Research papers should no longer depend on private book collections or access to a library. Wikipedia should create equal opportunities for anyone seeking information.

1. Larry Sanger, 'Why Wikipedia Must Jettison Its Anti-Elitism', Kuro5hin, 2004, http://www.kuro5hin.org/story/2004/12/30/142458/25.
2. Wikipedia contributors, 'Wikipedia:Admistratoren', http://de.wikipedia.org/wiki/Wikipedia:Administratoren, Accessed 18 February 2010.
3. Eric S. Raymond, *The Cathedral and the Bazaar. Musings on Linux and Open Source by an Accidental Revolutionary*, Beijing: O'Reilly, 2001.

Given its founding principles, we might presume that Wikipedia itself is built democratically. But, of course, its critics express scepticism time and again towards Wikipedia's production processes [5] and its claim that it arrives at knowledge via democratic consensus. [6]

MC: How has this original 'emancipation ideology' stood the test of time if we look at the climate of content production in Wikipedia up to today?

CS: Well at first glance Wikipedia's open, social platform seems to support the emancipation ideology. And Wikipedia's publicity efforts fiercely employ this position to raise funds. A call for donations reads:

> Wikipedia will allow millions of people around the globe to find out something new today. As a non-profit organization supporting a global community of freelancers, we strive to make more and improved information available in all languages for all people – free of charge and advert-free. [7]

The advertisement highlights that Wikipedia is non-profit, and users are probably motivated to participate for precisely this reason. But you're asking: does Wikipedia employ its democratic ideology in practice?

Let's go back to Jimmy Wales speaking about the future at the 2005 conference. He first stated that the principal task was completion (the number of articles at that time by far exceeded those of established encyclopedias), but then later on said the goal is improved quality. [8] You also find this shift in emphasis from quantity to quality in the invitation to new authors on the site's main page. Originally this read, 'Everyone can contribute a piece of knowledge – the

4. Jimmy Wales, 'Introductory Remarks', Wikimania Kongress, 2005, http://upload.wikimedia.org/Wikipedia/commons/a/aa/Wikimania_Jimbo_Presentation.pdf.
5. E.g. Don Tapscott and Anthony D. Williams, *Wikinomics: How Mass Collaboration Changes Everything,* New York: Portfolio, 2006; James Surowiecki, *The Wisdom of Crowds: Why the Many are Smarter than the Few and How Collective Wisdom Shapes Business, Economies, Societies, and Nations,* New York: Doubleday, 2004.
6. Jaron Larnier, 'Digital Maoism: The Hazards of the New Online Collectivism', Edge: The Third Culture, H., 30 May 2006. http://www.edge.org/3rd_culture/lanier06/lanier06_index.html; Sanger (2004)
7. Wikipedia contributors, 'Wikipedia:Spenden', http://de.Wikipedia.org/wiki/Wikipedia:Spenden, Accessed 18 February 2010.
8. Alex Rühle, 'Wikipedia-Fälschungen. Im Daunenfedergestöber', ['Wikipedia frauds. In a flurry of down feathers'], www.sueddeutsche.de/kultur/artikel/631/90541/article.html.

first steps are easy!'[9] but a month later it was changed to: 'Good authors are always welcome here – the first steps are easy!'[10][11] This change suggests, in contrast to emancipation ideology, not everyone is suited to write articles. To honor the requirement of quality, it is necessary to implement certain parameters for production.

Also, Wikipedia is very much in the public eye, and so the more regularly and intensely society makes use of it, the more people will be concerned with quality, obviously. Mistakes have resonance and often reappear in press articles; journalists will report mistakes without bothering to investigate what caused them. Some users think that Wikipedia was better when it started out, because you could basically do what you wanted, while these days, if something out of the ordinary happens it's reported in a weekly magazine such as 'Der Spiegel'.

The emancipation ideology is also contradicted by the different levels of user experience and knowledge and by the nascent power imbalance within the organization's development, reflected in its selection of privileged system operators. Maintaining and administrating its enormous number of articles based on a purely 'grass-roots constitution', where everyone has the equal right to voice their opinion, would inevitably bring difficulties.

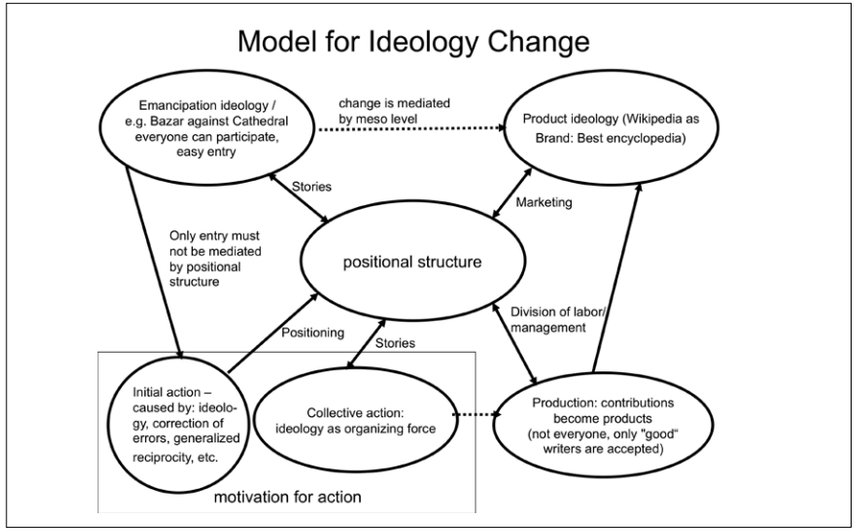
So while emancipation ideology presents a definite advantage in recruiting new staff and collecting donations, it hampers Wikipedia's organizational structure.

MC: If quality has become the primary ideology driving content development today, can you describe how this play out in Wikipedia politics of content production? Do you see this as the inevitable result of Wikipedia's 'growing up'?

CS: I propose the terms 'product ideology' to describe Wikipedia's current emphases on quality over democratic participation. Experience definitely is a crucial factor driving this ideological transformation. Users who have been active for a while have encountered numerous disputes and vandalism. So-called 'trolls' add fuel to the fire by relishing in quarrelling and aggravation. IPs, or unregistered users, are often regarded as especially untrustworthy. Although newcomers are theoretically welcome, they are considered problematic for causing additional work by more experienced users who understand the negotiated standards or have experience with disputes, or maybe because of cultural differences. Experienced users who have been around for a while wind up distancing themselves from less active or new participants.

Wikipedia's structure also presents a problem when local, cultural approaches lead to conflicts during negotiations. Every user has a 'Weltanschauung' or position in relation to article authors, vandal hunters, agency staff, those who reply to queries concerning Wikipedia and

9. Wikipedia contributors, 'Haupseite', 14 July 2005, 23:58, http://de.Wikipedia.org/wiki/Hauptseite, accessed 19 February 2010.
10. Wikipedia contributors, 'Haupseite', 10 August 2005, 16:16, http://de.Wikipedia.org/wiki/Hauptseite, accessed 19 February 2010.
11. Wikipedia contributors, http://de.Wikipedia.org/wiki/Hauptseite, accessed 19 February 2010.



Structural model of ideology change.

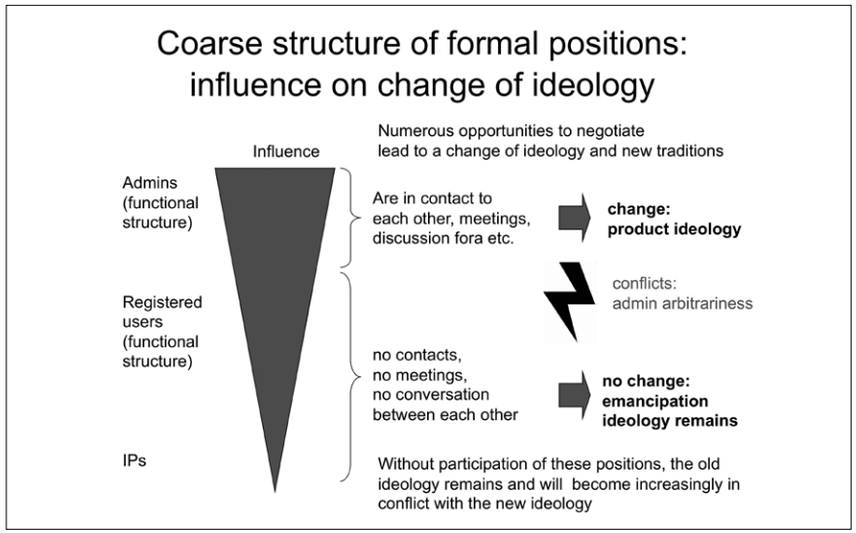
those who greet new users and take on the role of mentors, etc.[12] These positions have become necessary to govern Wikipedia, but they aren't particularly transparent from an outsider perspective, which further aggravates new users' understanding of the project. You might say Wikipedia's structure particularly encourages demarcation between these positions.

Figure 1, 'Model depicting ideology transformation', shows how the product ideology develops at the structural level as users carry out negotiations among each other. Users maybe were at first attracted to the emancipation ideology before initial activity, when they had no direct contact with the division of work that manages content within the organization. Then by making a first contribution to an article, they are placed in Wikipedia's positional system, where their emancipation ideology contests the demands of the environment. Users' original motives then modify during subsequent disputes and over time.

The emancipation ideology rejects an operative structure, so users invested in this idea may not be as socially integrated. Paradoxically, faced with a lack of social integration or negotiating options, they have no great opportunity to bring democratic principles back into Wikipedia's operations. Still, the emancipation ideology continues to work as a resource of inspiration for new users.

MC: How exactly do users' ideological transformations take place as they assume these operative positions? Can you also explain the assumption of these roles in more detail?

12. The term 'position' is used in a similar way as in role theory – a position fulfils the condition that one takes within a collective. If activities arise due to this position, then one speaks of 'role activities'.



Different formal positions and their rule in ideology change.

CS: In the context of Wikipedia this question is problematic. You can't see the precise location of negotiations in a situation that leads rapidly to a positional structure. Also, the 'settlement' of users into specific positions happens more quickly sometimes than others, and this inevitably leads to asynchronicities as is claimed by the model, (fig. 2). One could even go further and say that it *inevitably* leads to such asynchronicities.

The illustration reveals formal positions within Wikipedia. These correspond with our observations that a biased structure exists among users. However, the illustration ignores what sociology calls 'informal' structures that are often the object of network analyses.

Here, a 'ruling class' has emerged, composed at the top by formally endorsed administrators. Admins are selected according to a special electoral procedure; in order to stand for election, a user must have attained a certain level of trust by adhering to the norms and establishing a committed position on topics. Typically admins aren't just in contact with one another online, but also meet in person on a more or less regular basis. They might also make use of mailing lists and chats external to Wikipedia. Due to the scope of disputes across Wikipedia, some discussions are only (or at first) carried out between these experienced users via these private mailing lists. These are 'backrooms', to use a political analogy, in which decisions can be 'prepped' before being presented to other users for democratic discussion. Though these communication channels are open to other users, they are most often used by admins to discuss ways to improve Wikipedia's quality, and though they remain at the level of negotiations, they put the product ideology into action, which is problematic for those subscribing to the emancipation ideology. For instance, to the dismay of the 'elite' among the administrators and other users who have experience in article creation, they are time and again confronted with the same beginner user problems and tend to deal with beginner users from that perspective. This mutual contact and the shared perception of beginners reinforce their adaptation of the product ideology.

If admins convert the product ideology into negotiation tactics, 'normal' users label it 'capricious' – administrators should on no account have more to say than other users do. But they possess access to the buttons for suspending users and deleting articles, so the formation of consensus becomes a foregone conclusion. Negotiations are often not explicitly justified, in particular those anchored in the product ideology of the negotiating admin, and the normal user may face the consequences and begin to feel affronted. It is however the so-called 'IPs', i.e., unregistered users, who are subjected to this the most, since most acts of vandalism are carried out by IPs.

MC: You conducted research in 2006 on how this ideological division shapes and also is in turn shaped by Wikipedia's cultural landscape. Can you elaborate on your results?

CS: In the current phase of Wikipedia, to summarize what I was saying, we found that cultural differences are beginning to emerge at the uppermost level of the project, where product ideology becomes a justification for activities. Conflicts develop between the few who are socially integrated and those who are formally accepted as core users (admins or participants in internal organizational decision-making) and between both of these groups and those on the periphery.

Our 2006 research compared content on user pages from their original starting date to the present. [13] We noticed a transformation from emancipation to product ideology among those who had reached leadership status, but not for ones less integrated. Typical statements from a user site's first days would be: 'Wikipedia is a great idea'; '[a] never-ending encyclopedia created by many different authors'; 'everyone should be able to exchange their knowledge for free'; 'Wikipedia is like fulfilling a dream – a book in which everyone can write what they want'; 'the Internet shouldn't be regarded as a goldmine'; 'Making information available free of charge is an important task'; 'the project's concept is fantastic'; 'the idea behind Wikipedia is well worth supporting'.

Six out of seven users who changed their ideological statements were core users, and five of these were administrators. Half of them deleted their opinion on emancipation ideology in the same instance they became administrators. In five out of nine cases, they expressed the product ideology, including remarks about 'unreasonable' people damaging the project, about endless discussions that should not take place when energy should be invested in the articles instead, and about 'difficult' people who are not welcome at Wikipedia. We also found phrasing such as 'certain level of expertise is necessary for writing the articles' or that liberal processing is the reason behind low quality contributions.

13. Evaluations carried out by Victoria Kartaschova. The group was made up of a sounding board that discussed 30 articles that were closely examined as part of the project. See Christian Stegbauer, 'Wikipedia. Das Rätsel der Kooperation' ['Wikipedia: the mystery behind the cooperation'], Wiesbaden: VS, 2009, p. 279 et seq.

Two out of three users in peripheral positions who made statements about emancipation ideology at the start of their cooperation eventually backed out of Wikipedia, claiming 'admin capriciousness'.

Cultural development therefore takes place as integration becomes a requirement for levels of participation. Once integrated, user negotiations start forming local cultures, springing up where they congregate and discuss, each with their own routines and standards and mutual understanding.

MC: Can you give some examples of specific conflicts that arose between these two groups – the core users and the peripheral users – and explain if and how they might be significant for Wikipedia's future development?

CS: Well, in addition to analyzing user pages, we carried out 20 guided interviews, and what became visible is how a user's local position in Wikipedia shaped her perceptions. One line of conflict developed between OTRS and vandals. [14] OTRS workers answer questions about Wikipedia, such as complaints of article deletion or back-spacing of article content due to vandalism or posts considered not relevant. Vandalism opponents are often responsible for these flags, and they sometimes make mistakes in the process.

One interviewer remarked:

> [...] IPs [...] often write to OTRS, and then OTRS people are obliged to reply. 'Sorry, we didn't mean to' and so on. This is why there is conflict now and again between the OTRS people and the others who argue that the comments should be better [...]

Also feuds arose among different positions that reveal their typical points of view about Wikipedia itself. [15] An interviewer who deals in conflict management at Wikipedia stated: 'Yes, there are feuds between quality assurance people and vandal hunters and there are feuds between IPs and vandal hunters'. Yet another interview partner stated: '[...] of course conflict also exists amongst article authors who are, naturally, convinced that their article is the most important and the vandalism opponents who only care about the struggle against vandalism'.

One article author even compared his defence against others with warfare:

> I try to make one specific group of people's life difficult, the ones who don't actually write articles themselves but just hang about at the discussion level. The public security forces, or at least those who feel summoned, they are the ones I want to keep occupied.

14. OTRS staff answered queries from outside of Wikipedia. See also the corresponding article about the abbreviation in Wikipedia contributors, 'Otrs', http://de.wikipedia.org/wiki/Otrs, accessed 28 May 2010.
15. Similar to Whites' (1992) 'pecking order'. See Harrison C. White, *Identity and Control: A Structural Theory of Social Action*. Princeton, NJ: Princeton Univ. Press, 1992; and *Identity and Control: How Social Formations Emerge,* 2nd ed. Princeton: Princeton University Press, 2008.

> A classic example would of course be the article 'xxx' [...] something that is not considered an issue [...] during most of the discussions but rather is made fun of. I created that as a kind of trap for the mobs [...] I'd already said I would do it [...], create something that's like a flytrap for these masters of discussion! Then I ended up defiantly arguing that [...] in terms of warfare, some mines are not made to kill people but just to blow off one of their legs. Why? Because two or three opponents are bound together in their duty. It means there's no time left for the others.

The uniformity among users with the same roles doesn't seem conscious. Official roles are just converted into concrete expectations and then linked with operative decisions. The behavior of users is often not related to what is convenient for them, but rather defined by external pressure.

Take the arbitration committee: decided cases will likely determine future decisions and traditions, and rules come into play that will not immediately lose their validity simply due to a personnel change. After a while, observers learn to anticipate the reaction of the committee. This micro-cultures constitution also contributes to improved security when dealing with disputes, since the adjudicators can trust that as soon as they make use of the negotiated tools, other allies will defend the same position when in conflict with external parties. It's this mutual trust by others in the same position that creates the initial basis for enforcing decisions, and the recognition of arbitration verdicts depends on this. So through constant negotiations and disputes between the users, positions adopt a relatively uniform image related to others.

MC: In some ways what you describe sounds like speciation – complexity and diversity developing from evolution. Is Wikipedia then growing a more homogenous ideology or a more diverse subset of cultural groups?

CS: It's true that cultural production in Wikipedia will soon concern these micro-cultures with specific behavioral and interpretational toolkits. Especially through disputes, different positions will come to understand their tools, which are further distributed and constantly emerge (or are forgotten). This is a very structuralist perspective on cultural production that closely examines culture as a process of interaction. The creation of positions caused by initially personal divisions of labor give rise to distinct cultures. These traditions are never settled, despite how they might be perceived from the outside.

And again, ideology itself is a meaningful driver of activity but is always being developed and changed during disputes. Action and justification for action should not diverge too much – when it does, ideology must change alongside these changing actions. Yet in this case, we see that emancipation ideology, even if it isn't always reflected in current practices, is still useful for fundraising and attracting new volunteers and negotiating disputes and as a part of Wikipedia's collective memory.

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THE WIKIMEDIA FOUNDATION AND THE SELF-GOVERNING WIKIPEDIA COMMUNITY
A DYNAMIC RELATIONSHIP UNDER CONSTANT NEGOTIATION

SHUN-LING CHEN

Introduction – Wikipedia as a New Network for Encyclopedia Production

Traditional encyclopedias base their credibility on two mutually dependent institutions that have claimed authority over knowledge production, namely the academic institutions that produce 'experts' and the publishing houses whose practices involve contributors, reviewers, and editors whose expertise is certified by the academic institutions. The Wikipedia community [1] – a loosely-structured group of individuals who share the goal of providing a free and quality encyclopedia to the public, who have developed a collective identity, and who participate in the production of Wikipedia and its self-governing structure in various ways – questions the production model of traditional encyclopedias and the claim that such a model is the only path for the public to enjoy quality reference work. Wikipedia suggests that a self-governing community consisting of dispersed and sometime anonymous individuals is also capable of providing credible reference works and has gradually convinced many that it is a viable alternative to traditional encyclopedias.

Using the analytical framework offered by Michel Callon's sociology of translation,[2] this essay explores local processes of social ordering and resistance by following the dynamic relations between various actors associated with the production of Wikipedia.

The Wikipedia community defines reference works as succinct summaries of existing knowledge, a definition with which traditional encyclopedias may agree. But the Wikipedia commu-

1. Wikipedia exists in many languages; each has its own community. This paper does not deal with local policies in each project, but focuses on the relationship between the Wikimedia Foundation (WMF) and the Wikipedia community as a whole. The WMF also supports Wikipedia's sister projects. When discussing cross-project issues, as the Wikipedia community can be negotiating with the WMF together with sister communities, I also use the term 'Wikimedia community'.
2. The process of translation starts from *problematisation*; some actors seek to be indispensable to other actors by defining the nature of the problems of the latter. The former self-appoint as the focal actor and seek to lock other actors in the roles proposed to them (*interessement*), claiming that by implementing their proposal, the obligatory passage point – a situation through which all actors' interests can be satisfied – will be reached. The focal actors strategize to define and interrelate the various roles assigned to the actors (*enrolment*) and use a set of methods, including displacing actors with *mobiles* – figures, graphics, and tables – to ensure that supposed spokesmen for various relevant collectivities are able to represent them and not be betrayed by them (*mobilization*). Michel Callon, 'Some Elements of a Sociology of Translation: Domestication of the Scallops and the Fishermen of St Brieuc Bay', in John Law, *Power, Action and Belief; A New Sociology of Knowledge?* Routledge & Kegan Paul, 1986, pp. 196-223.

nity proposes an alternative network of encyclopedia production. The *interessement* device [3] is made of a technological platform (the wiki), a legal platform (free copyright licenses that reverse the usual application of copyright law to facilitate cooperation), and a set of community-developed policies. Many of the editorial policies are widely accepted principles of science – the community absorbed them and converted them into its own policies, which can be further negotiated and refined. [4] These policies and practices allow the community to remove experts from the central position they traditionally occupy in producing encyclopedias. In Wikipedia's network, the boundary between contributor/reviewer/editor and reader that was paramount in the traditional model is blurred – any literate person who has reasonable judgment and who follows good practices as defined by the community can contribute. These content policies apply to every contributor and are enforced by trusted community members, who have earned such trust by conforming to communal policies. The community assigns readers a new role to vigilantly examine the information provided by contributors and, ideally, to become editors. [5]

The sociology of translation offers a way to explore the origins of power and organization by showing how actors are connected with one another in a network and by analyzing the ordering struggle among actors. This paper does not attempt to provide a full description of the Wikipedia network, but focuses on one actor I have identified – the Wikimedia Foundation (WMF) – and its negotiations with the Wikipedia community.

Recruiting a Non-profit Organization to Wikipedia's Network

While the Wikipedia community appears to be a novel institution – a flat structure operated by dispersed and sometimes anonymous individuals – it has had a conventionally organized legal entity to provide certain services. In its first two years, Bomis, Jimmy Wales' for-profit company, served this role. In fact, Bomis started Wikipedia in 2001 as a feeder project for Nupedia – its other free encyclopedia project that operated on an expert-written/reviewed/edited model. But Wikipedia took off as Nupedia stalled, and its network eventually disintegrated. As the Wikipedia community grew, the struggle between the community and Bomis intensified. The community demanded a more sophisticated *interessement* device by replacing the for-profit company with a non-profit organization. It became clear that without such a refinement, some contributors would disenroll and could greatly threaten the network's stability. [6] In 2003, the

3. Ibid.
4. See Shun-ling Chen, 'Wikipedia: A Republic of Science Democratized', *Albany Law Journal of Science and Technology*, 20 (2) (2010): 247.
5. See ibid, 309-312.
6. In 2002, suspecting that Bomis retained overall control over the project and disagreeing with Bomis on various issues, including the possibility of introducing advertisements to Wikipedia, the Spanish Wikipedia community forked, taking the free content on the Spanish Wikipedia, as well as many of its contributors, to start another free encyclopedia project. See Edgar Enyedy and Nathaniel Tkacz, '"Good luck with your WikiPAIDia": Reflections on the Spanish Fork of Wikipedia' in Geert Lovink and Nathaniel Tkacz, *Critical Point of View: A Wikipedia Reader*, Amsterdam: Institute of Network Cultures, 2011, pp. 110-118. Andrew Lih also sees the Spanish fork as a key incident, which stalled the Spanish Wikipedia and 'convinced Wales and his partners [at Bomis] that they had to spin off Wikipedia into a non-profit entity'. Andrew Lih, *The Wikipedia Revolution*, New York: Hyperion, 2009, pp. 9, 138.

WMF was founded [7] at the community's urging. [8] The development not only ensured that Bomis would not be able to harvest the collaborative work of the community, but also showed that the community had stepped up to be the focal actor of the network.

The WMF is conscious that it owes its legitimacy and value to the community. Such consciousness is also reflected in how the WMF Board of Trustees (Board) – WMF's highest authority – is structured, with about half of it members representing the community, and the other half appointed for professional skills. [9]

The WMF serves various functions to mediate between the community and society, which I divide into two categories:

1. The WMF as an institutional interface:

The WMF manages services and resources for Wikipedia and its sister projects (Wikimedia projects), [10] and can enter into agreements with a third party in these capacities. For example, Wikimedia projects are hosted on WMF's servers. [11] The WMF has obtained charity organization status to receive tax-deductible donations to support Wikimedia projects and has registered related trademarks and policed them to prevent their dilution. [12]

Secondly, while volunteers often self-organize to issue press releases and to answer public inquiries, [13] the WMF has become an important communication window between the com-

7. Jimmy Wales, posting to the Wikipedia-l list (Wikipedia-l), 20 June 2003, http://lists.wikimedia.org/pipermail/wikipedia-l/2003-June/010743.html (informing the creation of the WMF).
8. See e.g., Chuck Smith, posting to Wikipedia-l, 30 January 2003, http://lists.wikimedia.org/pipermail/wikipedia-l/2003-January/008780.html, inquiring about the plan for setting up a foundation, with Wales replying that it was in the process. Wales acknowledged Erik Möller for urging the founding of the WMF: '[T]hanks really go [sic] to Erik, who called me on the phone about it this morning. That call kicked my butt to investigate the holdup, only to find that there was no holdup, and everything is ready to proceed'. Wales, posting to the WikiEN-l list (WikiEN-l), 20 June 2003, http://lists.wikimedia.org/pipermail/wikien-l/2003-June/004722.html.
9. See MetaWiki, BoardChart, https://secure.wikimedia.org/wikipedia/meta/wiki/Template:BoardChart, showing that aside from the first months, community-elected members occupy 40-50 percent of the seats on the WMF Board. With the Board restructuring in 2008, chapter seats (selected by chapters – independent organizations founded by community members within a specific geographical region and approved by the WMF to support Wikimedia projects) and community seats together make up half of the Board.
10. Wales transferred the ownership of the Wikipedia and Nupedia domains from Bomis to the WMF and donated the copyright of related contributions by Bomis' employees' to the WMF. See *supra* note 7.
11. See Wikimedia Foundation, 'Our Projects', http://wikimediafoundation.org/wiki/Our_projects.
12. Mike Godwin (mnemonic1, WMF's General Counsel, 2007-2010) and others: IRC Office Hours/Office Hours, 15 October 2009, http://meta.wikimedia.org/wiki/IRC_office_hours/Office_ hours_2009-10-15 (discussing how the WMF deals with trademark violation); See *also* Wikimedia Foundation, 'Resolution: Trademark Statement', http://wikimediafoundation.org/wiki/Resolution:Trademark_statement.
13. Even after the WMF was established, community members continue to serve as press contacts. See http://wikimediafoundation.org/w/index.php?title=Press_room&oldid=46746.

munity and outsiders. As Wikipedia's cultural and social significance grew with its popularity, more complaints and inquiries arose from the public. Those who are unfamiliar with Wikipedia's model may prefer addressing their inquires to a legally incorporated entity instead of dispersed and often anonymous and pseudonymous individuals. However, the WMF often simply refers them to the volunteer response team, which was initiated in 2004 to handle the public relations of Wikimedia projects. [14]

That the WMF often has to act on behalf of the community when it performs functions in this category adds difficulties to its *enrolment,* [15] for the community is unable to effectively cut or weaken the links between the WMF and other entities, and to lock the WMF in the community-designated positions. In fact, the community sometimes relies on the WMF to establish links with other actors. Hence, the WMF has a special role as it may compete with the Wikipedia community to represent the network, and the community constantly attempts to keep it in check.

2. The WMF as an institutional buffer:
The WMF may formally adopt policies or resolutions that affect the operation of the projects. [16] WMF's authority is based on two related facts: (1) the WMF is established to carry out community-designated goals; (2) the WMF as a service provider has to meet certain legal obligations.

As the service provider, under the governing U.S. law – section 512 of the Digital Millennium Copyright Act (DMCA) [17] and section 230 of the Communications Decency Act [18] –, the WMF is not responsible for users' copyright violations or libelous speeches, so long as the WMF adopts reasonable procedures and performs them accordingly when being notified of such violations. While earlier the WMF office did directly respond to some complaints, [19] in order to retain these immunity statuses, it has gradually taken on the position that the WMF should not make editorial decisions for the community, [20] although the Office Actions Policy on the English Wikipedia still permits the WMF to act directly in extreme cases.

When certain measures are taken as responses to external pressures, WMF's role and actions as an institutional buffer is important for the *enrolment* of actors – for such a buffer cuts

14. Wikimedia, 'Wikipedia: Volunteer Response Team', https://secure.wikimedia.org/wikipedia/en/w/index.php?title=Wikipedia:Volunteer_response_team&oldid=370149438.
15. See *supra* note 2
16. See Wikimedia Foundation, 'Bylaws', http://wikimediafoundation.org/wiki/Bylaws (indicating WMF's power to pass resolutions and policies).
17. 17 U.S.C. 512.
18. 47 U.S.C. 230.
19. Wikipedia contributors, 'Wikipedia: Office Actions', http://en.wikipedia.org/w/index.php?title=Wikipedia:Office_actions&oldid=344580302.
20. Now the WMF considers the overly broad application of office actions as a result of its immaturity in the early age. See e.g., Kat Walsh, posting to the Foundation-l mailing list (Foundation-l), 18 May 2008, http://lists.wikimedia.org/pipermail/foundation-l/2008-May/043106.html; Michael Snow, posting to Foundation-l, 19 May 2008, http://lists.wikimedia.org/piper mail/foundation-l/2008-May/043126.htm.

off, or obstructs, the link between the community and outsiders, preventing outsiders from providing actors with definitions that are different from the ones assigned by the community. How effectively such an institutional buffer can separate the community from conventional understanding of encyclopedia production and how much community autonomy and self-governance it can incubate, partly depends on the substance of the WMF policy, which is itself a result of negotiation.

Wikimedia Foundation Policies That Have Impacts on Communal Practices: Two Case Studies

Each WMF resolution has its own distinct history. Below I offer a closer look into the negotiations between the community and the WMF in deciding two issues that are fundamental to the community – one, two privacy-related resolutions adopted in 2008, and two, the licensing policy resolution adopted in 2007 and the license migration in 2009.

1. Privacy-related resolutions in 2008:
Wikipedia is known for its open structure: anyone can edit without a user name and register a user name without providing an email address, the server only temporarily stores the IP address information of logged-in users, and the access of such IP address information is restricted to a small number of highly trusted users. Although it is criticized for being prone to manipulation, the project remains friendly to privacy-conscious users [21] and refines its *interessement* device by tackling malicious edits with other measures that do not compromise this openness. [22]

The community traditionally develops the privacy policy for the projects. The first WMF Privacy Policy, adopted in 2005, was based on community discussions. [23] In April 2008, the Board passed two privacy-related resolutions. First, the Board adopted the Data Retention Policy, stating that the WMF only retains the least amount of users' personally identifiable information (PII) as needed for maintenance of its services, as consistent with its privacy policy or as required by governing law. [24] The community did not seem to perceive the resolution

21. In a study conducted by the advocacy group Privacy International, Wikipedia was among the five most highly rated websites among 23 regarding privacy awareness. Privacy International, *Race to the Bottom: Privacy Ranking of Internet Services Companies*, 2007, http://www.privacyinternational.org/article.shtml?cmd[347]=x-347-553961.
22. Wikimedia projects are not entirely friendly to anonymous edits made from open proxies for they are prone to be used for abusive purposes, although contributors can edit from open proxies if they are not blocked. See Meta-Wiki, 'No open proxies', https://secure.wikimedia.org/wikipedia/meta/wiki/Open_proxies.
23. See archived community discussions before the board adopted the 2005 privacy policy https://secure.wikimedia.org/wikipedia/meta/wiki/Talk:Privacy_policy/archive. This version was later updated in 2006 to give a user group – Checkusers – access to registered users' IP addresses. See Angela Beesley, posting to Foundation-l, 14 April 2006, http://www.gossamer-threads.com/lists/wiki/foundation/56009#56009.
24. Wikimedia Foundation, 'Resolution: Data Retention Policy', http://wikimediafoundation.org/wiki/Resolution:Data_Retention_Policy.

as having changed the existing practices.[25] Then board member Domas Mituzas explained that the resolution is to provide 'clear guidelines, [for] what we want to comply with, and a place to point at anyone [...] what [private information] we do [have]'.[26] From researching the public records, I am not aware of a direct statement on whether the board proposed the Data Retention Policy as a response to outside pressure. But the proposal was made in February 2008, almost immediately following the January 2008 'Video Professor' incident (in which the WMF provided a user's PII when served a subpoena, explained below).

The second resolution the WMF adopted in April 2008 was to amend its privacy policy.[27] Other than addressing the privacy-related consequences of the various user activities in Wikimedia projects, the policy also states the limited occasions when the WMF may have to provide users' PII retained on its servers to third parties.[28] The Board resolved to revise the privacy policy after a user, Nsk92, protested the WMF for providing his PII (IP address in this case) to a third party without first notifying him/her when it was served a subpoena in a civil law process,[29] although the practice was permitted by the privacy policy in effect at the time of the incident.[30] Nsk92 was among the users[31] who edited an entry about 'Video Professor (VPI)', a company that provides computer tutorial CDs.[32] The article mentioned criticisms of VPI's business model which involves advertising a first free trial disc, charging only shipping cost, but assuming subscriptions and automatically charging subsequent course fees.[33] VPI did not appreciate the negative descriptions and went after users who edited the Wikipedia article.[34] The WMF considered its provision of Nsk92's PII to VPI as merely throwing the ball to Comcast, Nsk92's internet service provider, to decide whether it would provide the

25. E.g., Lodewijk (effe iets anders), a Dutch user, understands the resolution as simply restating the actual practices, posting to Foundation-l, 9 May 2008, http://lists.wikimedia.org/pipermail/foundation-l/2008-May/042760.html.
26. Posting of Domas Mituzas to Foundation-l, 9 May 2008, http://lists.wikimedia.org/pipermail/foundation-l/2008-May/042762.html.
27. Wikimedia Foundation, 'Resolution: Privacy Policy Update April 2008', http://wikimediafoundation.org/wiki/Resolution:Privacy_policy_update_April_2008.
28. Wikimedia Foundation, 'Privacy Policy', http://wikimediafoundation.org/wiki/Privacy_policy.
29. See 'Policy Updates, Wikipedia Signpost', 12 May 2008, http://en.wikipedia.org/wiki/Wikipedia:Wikipedia_Signpost/2008-05-12/Policy_updates.
30. The privacy policy in effect was the 2006 version, which permitted the WMF to release users' personally identifiable data 'in response to a valid subpoena or other compulsory request from law enforcement'. Wikimedia Foundation, Privacy Policy 2006, http://wikimediafoundation.org/w/index.php?title=Privacy_policy&oldid=14088#Policy_on_release_of_data_derived_from_page_logs.
31. Wikipedia contributors, 'Video Professor', http://en.wikipedia.org/w/index.php?title=Video_Professor&oldid=152512779 (archived 20 August 2007, showing the first revision of the entry made by Nsk92).
32. VideoProfessor.com, Press Kit, http://www.videoprofessor.com/about videoprofessor/presscenter/presskit/presskit.html.
33. See *supra* note 31. See *also* Joseph S. Enoch, 'Video Professor Drops Subpoena, Goes After Wikipedia Users', ConsumerAffairs.com, 18 December 2007, http://www.consumeraffairs.com/news04/2007/12/video_prof03.html.
34. Ibid.

subscription information associated with the IP address.[35] Nsk92 questioned the WMF for not having given him an opportunity to resist the subpoena. Nsk92's stance obtained wide community support and led to the subsequent board resolution.[36] The new draft developed by the WMF office[37] was posted on a public wiki in June 2008 for two rounds of discussions, and the final version was largely taken from a revision provided by users.[38] Even after such an extended discussion, the board requested more comments from the community in August[39] before it adopted the current privacy policy in October 2008.[40]

2. The Licensing Policy Resolution in 2007 and the License Migration Process in 2009

To provide a free encyclopedia, Wikipedia chose the GNU Free Documentation License (GFDL) when it started in 2001. The GFDL is a free license that permits users to copy, distribute, and modify the content. It is also a 'copyleft' license that requires derivative works to be released under the GFDL. WMF's 2003 bylaws states that its mission is to develop and maintain Wikipedia and sister projects and distribute them 'free of charge to the public under a free documentation license such as the [GFDL]'.[41]

In the earlier days when free content was rather limited, compromises were made to include non-free content for comprehensiveness. Such compromises became less justifiable as Wikipedia became more mature and as more free content became available. For example, in May 2005, Wales posted a message on the English Wikipedia mailing list (WikiEN-l) clarifying that non-free images were tolerated only as an 'interim measure' and that images would not be acceptable as new uploads if they are not free.[42] Nevertheless, whether non-free material could be included and under what circumstances remained a source of uncertainty and disagreement in the community.

In January 2007, a Wikipedian suggested on the Foundation-l mailing list (Foundation-l) – the list for discussions about Foundation-wide policy or universal issues – that the Board should

35. See Wikipedia contributors, 'Releasing IP Addresses of Registered Users: the Video Professor Incident', http://en.wikipedia.org/wiki/Wikipedia:Village_pump_(policy)/Archive_25#Releasing_IP_addresses_of_registered_users:_the_Video_Professor_incident.
36. Ibid. See *also* Ral315 (Ryan Lomonaco), 'Policy Updates', Wikipedia Signpost, 12 May 2008, http://en.wikipedia.org/wiki/Wikipedia:Wikipedia_Signpost/2008-05-12/Policy_updates.
37. For full disclosure, in May 2008, I interned at the WMF and was involved in preparing the draft. I was instructed to only incorporate existing policy and the new resolution.
38. Meta-Wiki, 'Draft Privacy Policy June 2008', http://meta.wiki media.org/w/index.php?title=Draft_Privacy_Policy_June_2008&oldid=1050218 and its talk page; Meta-Wiki, 'Draft Privacy Policy June 19 2008', http://meta.wikimedia.org/wiki/Draft_Privacy_Policy_June_19_ 2008 and its talk page.
39. Michael Snow, posting to Foundation-l, 8 August 2008, http://lists.wikimedia.org/pipermail/foundation-l/2008-August/045169.html.
40. The board adopted the latest version of the privacy policy on 3 October 2008. *Supra* note 28 .
41. Wikimedia Foundation, Bylaws (2003), http://wikimediafoundation.org/w/index.php?title=Bylaws&oldid=203#ARTICLE_II:_STATEMENT_OF_PURPOSE.
42. Jimmy Wales, posting to WikiEN-l, 19 May 2005, http://lists.wikimedia.org/pipermail/wikien-l/2005-May/023760.html.

advise the community on the usage of non-commercial images. [43] The posting generated extensive discussions. Two Italian Wikipedians defended the inclusion of non-free material in the Italian Wikipedia due to the lack of free alternatives. [44] Some Dutch community members also attempted to approve the Creative Commons NonCommercial (CC-NC) license, which prohibits commercial uses, in the local project. [45] Almost at the same time, a WMF employee notified the Hebrew Wikipedia (He-WP) that the WMF prohibited non-commercial and educational-only licenses. The He-WP community was aware of Wales' posting to WikiEN-l in May 2005 but considered it to be effective only on the English Wikipedia. [46] Hence, an editor inquired whether the He-WP could have its special license that permits only educational reuses. [47] It was clear that the community lacked an agreement regarding what the obligatory passage point is in this network, i.e., what counts as a 'free' and quality encyclopedia.

With intensive community discussions going on, the board postponed a decision about this issue. [48] On 8 February, Kat Walsh, a Board member, [49] announced its position before it reached a final solution – the WMF would only host freely licensed media, except when it is unrealistic to expect that media considered important for educational purposes would be released under free licenses. [50] On 20 February, Erik Möller, then a board member, [51] posted a draft resolution on Foundation-l, requesting comments from the community. [52] The discussion that followed was mainly about ensuring that the resolution expressed WMF's position on free educational material and limiting the exceptions local projects could have. At the end Möller stated that he did not expect consensus within the diverse community on whether

43. Hay Kranen, posting to Foundation-l, 10 January 2007, http://lists.wikimedia.org/pipermail/foundation-l/2007-January/026790.html.
44. See several responses to the thread in *supra* note 42 by Marco Chiesa and Senpai.
45. See Lodewijk, posting to Foundation-l, 10 January 2007, http://lists.wikimedia.org/pipermail/foundation-l/2007-January/026815.html
46. Yoni Weiden, posting to Foundation-l, 10 January 2007, http://lists.wikimedia.org/pipermail/foundation-l/2007-January/026823.html
47. Yoni Weiden, posting to Foundation-l, 10 January 2007, http://lists.wikimedia.org/pipermail/foundation-l/2007-January/026804.html.
48. Kat Walsh, posting to Foundation-l, 14 January 2007, http://lists.wikimedia.org/pipermail/foundation-l/2007-January/026937.html.
49. Walsh was appointed to the board in December 2006 following a board expansion decision. See Florence Devouard, posting to Foundation-l, 8 December 2006, http://lists.wikimedia.org/pipermail/foundation-l/2006-December/025503.html. Since July 2007 she has occupied a community-elected seat on the board. See Philippe Beaudette, posting to Foundation-l, 12 July 2007, http://lists.wikimedia.org/pipermail/foundation-l/2007-July/031683.html and the BoardChart *in supra* note 9.
50. Kat Walsh, posting to Foundation-l, 8 February 2007, http://lists.wikimedia.org/pipermail/foundation-l/2007-February/027547.html.
51. Erik Möller was a community-elected Board member from 2005 until he resigned in December 2007. He then joined the WMF and has been serving as the deputy director since January 2008. See the BoardChart, *supra* note 9. and Sue Gardner, posting to Foundation-l, 18 December 2007, http://lists.wikimedia.org/pipermail/foundation-l/2007-December/036323.html.
52. Erik Möller, posting to Foundation-l, 20 February 2007, http://www.gossamer-threads.com/lists/wiki/foundation/84383#84383.

to exclude non-free material for the principle of freedom or to include non-free material for the purpose of comprehensiveness. Nevertheless, he expected higher support for freedom among regular contributors and asserted that freedom is fundamental to WMF's community-designated goal, which should never be abandoned 'even if a majority of contributors opposed it. It is a foundation value (with both a lower and upper case F)'. [53]

In March 2007, the WMF Board adopted the licensing policy: free licensing is the principle, while a minimal exception policy may be adopted locally if the unfree media can be included legally under certain legal doctrines within governing jurisdictions – such as the fair use doctrine in the United States. [54] The board also specified a standard of freedom – all free licenses have to meet the terms of 'Definition of Free Cultural Works (DFCW)', a definition that was initiated by Möller himself to resolve ambiguity about the phrase 'free content' in the context of Wikimedia projects. [55] The ambiguity of the term is an issue in the broader 'free culture' movement. [56] Being a prominent organization in the movement, Creative Commons (CC) offers a variety of licenses, from which a copyright owner can freely give away some kinds of authorial control and retain others. Some advocates, including Richard Stallman, founder of the Free Software Foundation (FSF), criticized those CC licenses that prohibit commercial reuses (NC licenses) and the preparation of derivative works (ND licenses) as unfree. [57] The DFCW shows closer ideological ties with the FSF, defining free cultural works as 'works or expressions which can be freely studied, applied, copied and/or modified, by anyone, for any purpose'. [58]

Möller was right about the difficulty for the diverse community to reach a consensus on this issue. Soon after the board adopted the resolution, in April 2007 some Norwegian Wikipedia users objected to WMF's 'dictat[ion]' over local projects for lack of consensus. [59] Kat Walsh replied to confirm that although '[f]or most community matters individual projects have autonomy [...] licensing [...] is part of [WMF's] mission', the WMF has authority to adopt a policy that is binding on all projects. [60]

53. Erik Möller, posting to Foundation-l, 5 March 2007, http://www.gossamer-threads.com/lists/wiki/foundation/85368#85368.
54. Wikimedia Foundation, 'Resolution: Licensing Policy', http://wikimediafoundation.org/wiki/Resolution:Licensing_policy.
55. Definition of Free Cultural Works, History, http://freedomdefined.org/History.
56. For a more detailed account for the ambiguity of free content in the free culture movement, see Shun-ling Chen, 'To Surpass or to Conform – What are Public Licenses For', University of Illinois *Journal of Law, Technology and Policy*, 2009 (1), http://www.jltp.uiuc.edu/archives/Chen.pdf.
57. Richard Stallman, 'Fireworks in Montreal', posting on Free Software Foundation Blog, http://www.fsf.org/blogs/rms/entry-20050920.html.
58. Definition of Free Cultural Works, http://freedomdefined.org.
59. See Kjetil Ree, posting to Foundation-l, 15 April 2007, reporting objections in the Norwegian (bokmål) Wikipedia community and asking for clarification, http://lists.wikimedia.org/pipermail/foundation-l/2007-April/029212.html.
60. Kat Walsh, posting to Foundation-l, 15 April 2007, http://lists.wikimedia.org/pipermail/foundation-l/2007-April/029215.html.

Möller was also right to assume stronger support for freedom within the community. There had been a longstanding community concern over whether the GFDL was the most suitable license for providing free material, or whether the content should be relicensed to a similar copyleft license, the CC Attribution-Share Alike License (CC-BY-SA). The GFDL was designed for hardcopies of software manuals and may not be suitable for other media. Its requirement to reproduce the lengthy license text when distributing verbatim copies or derivative works is burdensome for reusers. Secondly, the CC-BY-SA had become more popular than the GFDL, which was primarily used by Wikipedia and other projects that sought legal compatibility with Wikipedia. Because two copyleft licenses are inherently incompatible with one another (each requires a derivative work to adopt itself but not any other license), the GFDL prevented people from reusing most Wikipedia content under the CC-BY-SA. [61] In December 2007, the board resolved to collaborate with the maintainers of both licenses – the FSF and CC – to allow the WMF to relicense the GFDL material in Wikimedia projects. [62]

The license migration process is another example that shows the delicate negotiation of power between the WMF and the community on important policy decisions. In the 2007 resolution, the board did not adopt a substantial policy change, but only resolved to work with both organizations to produce a proposal for migration. It framed this decision as 'respond[ing] responsibly to longstanding community concerns', as well as a 'continu[ation of] longstanding traditions of strong community input and control over major decisions affecting the projects'. [63]

The WMF had started to negotiate with both organizations even before the 2007 resolution. [64] The heated discussion in the community immediately after the resolution showed that the community was not entirely aware of and involved in the initial process – suggesting that the WMF somehow acted independently and without clear delegation by the community. The language in the resolution also showed that the WMF understood the controversial nature of this decision and of its leading role in the process. After the 2007 resolution, the WMF actively facilitated community discussions on this issue, collecting doubts and concerns and seeking consensus. As many questions had to be addressed by the two license maintainers, the WMF acted as an institutional interface and negotiated on behalf of the community. For example, one major discussion was about CC's reputation as an organization that defends freedom, especially when it was compared to the FSF. Erik Möller engaged community members to turn their doubts about CC into a 'CC-BY-SA migration checklist', listing things the

61. Not all Wikipedia content was under GFDL. Uploading images that are in the public domain or under the CC-BY-SA and the CC-BY had always been permitted.
62. See Wikimedia Foundation, 'Resolution: License Update', http://wikimediafoundation.org/wiki/Resolution:License_update. Extended discussions on this resolution are archived at http://lists.wikimedia.org/pipermail/foundation-1/2007-December/.
63. Ibid.
64. Ibid.

community wanted CC to do before license migration. [65] CC took several measures to earn the Wikimedia community's trust, including adopting the same definition of freedom as the WMF and pledging that future versions of the CC-BY-SA would be at least as free as it was. [66]

As the community discussion gradually reached consensus and the WMF worked out a solution with the FSF and CC in spring 2009, the board 'invite[d]' the community to vote on the proposal to offer Wikimedia contents under the CC-BY-SA in addition to the GFDL. [67] The voting results in May 2009 showed strong support for the proposal, with 10.5 percent against and 75.8 percent in favor of relicensing. [68] The board immediately approved the relicensing. [69] To make this relicense possible, the FSF offered a new version of GFDL (1.3) that permits the site operator of a large-scale collaboration project (in this case the WMF), instead of the copyright holders (those who contributed to the Wikimedia projects), to relicense the website content. [70] Hence while the WMF lacked the legitimacy to implement the migration independent of the community, the new GFDL entitled the WMF to do so legally for those contents that were licensed as 'GFDL 1.2 or later'.

Overall, the Wikimedia community has shown strong commitment to providing free educational material. However, some continued advocating for including non-free materials. In March 2009, while the community was getting ready for the relicensing vote, a few people who had contributed high-quality photos proposed on the English Wikipedia Village Pump – a place where the community debates project policies – to admit photos released under NC licenses. [71] Proponents wanted to avoid exploitation by commercial entities and believed the inclusion of NC images would improve the project's overall quality and comprehensiveness, while opponents emphasized the principle of freedom. The proposal was withdrawn after WMF's general counsel confirmed that Wikipedia could not host NC content. [72] One proponent, Fir0002, retired/disenrolled from Wikimedia projects, mainly due to the lack of

65. Erik Möller, posting to Foundation-l, 3 December 2007, http://lists.wikimedia.org/pipermail/foundation-l/2007-December/035677.html. Möller made this proposal right before resigning from the board to serve as WMF's deputy director. See *supra* note 51.
66. See Mike Linksvayer, 'Creative Commons Statement of Intent for Attribution-ShareAlike Licenses Released', posting on the Creative Commons Blog, 17 April 2009, http://creativecommons.org/weblog/entry/8213. For a more detailed discussion of some Wikipedians' distrust of CC and how CC responded to Wikimedia community's concerns, see Chen, *supra* note 54, pp. 107, 129.
67. See Meta-Wiki, 'Licensing Update', https://secure.wikimedia.org/wikipedia/meta/wiki/Licensing_update.
68. Another 13.7% did not have an opinion on the issue. Meta-Wiki, *Licensing Update/Result,* https://secure.wikimedia.org/wikipedia/meta/wiki/Licensing_update/Result.
69. Wikimedia Foundation, 'Resolution: Licensing Update Approval', https://secure.wikimedia.org/wikipedia/foundation/wiki/Resolution:Licensing_update_approval.
70. See Free Software Foundation, 'GNU Free Documentation License Version 1.3', http://www.gnu.org/licenses/fdl-1.3.html.
71. Wikimedia contributors, 'Proposal for Introduction of NC Licensed Photos on Wikipedia', https://secure.wikimedia.org/wikipedia/en/wiki/Wikipedia:Village_pump_%28policy%29/Archive_62#Proposal_for_introduction_of_NC_licensed_photos_on_Wikipedia.
72. Ibid.

NC options.[73] Another proponent, Muhammad Mahdi Karim, continued to negotiate with the community by contributing images only under the GFDL 1.2[74] – whose burdensome requirements allows him to strike deals with commercial reusers and a licensing arrangement that the German Wikipedia (De-WP) voted to disallow in 2008.[75]

On top of the Village Pump page of Wikimedia Commons, a note discourages users to suggest allowing non-free material, calling it a 'waste of time', as hosting only free material is a 'basic rule of the place'.[76] Although so far the majority of the community supports free licensing, one can assume that disagreements on the licensing issue are likely to remain within the community.

The above examples show that when the WMF makes policy decisions that affect community practices, it typically involves the community in the discussions, which can take place on public wikis or on public mailing lists. The community-elected board members have played an important role in the communication between the WMF/Board and the community by soliciting comments and answering questions in these public channels. There are often several rounds of discussion. In the later rounds, the community participates in deliberating on a draft text, which reflects major points raised in the discussion or even includes languages provided by the community.

In the first example, the WMF restated its data retention practice in a resolution as well as revised its privacy policy as a result of external pressure, the legal procedure initiated by Video Professor. An upset individual or entity suing Wikipedia editors for making libelous claims, even if such editors followed good community norms and practices, can have chilling effects. Redefining the community boundary is a way for a self-governing community to defend itself against unwanted external interference. The WMF restated its 'longstanding commitment to minimizing the data retention of users and editors' to negotiate a realm of autonomy, which also helps the *enrolment*. Without having access to Nsk92's PII, VPI cannot bring him to court, where edits might be ruled legally libelous despite having been made according to communal norms, and make Nsk92 and other editors disenroll from the network with the threat of potential legal consequences. The resolution about updating the Privacy Policy also resulted from negotiations between the community and the WMF – the community demanded the WMF adopt a higher standard when handling users' privacy-sensitive information and formally inscribe it in a new policy.

73. Fir0002, User:Fir0002/Retirement, https://secure.wikimedia.org/wikipedia/en/w/index.php?title=User:Fir0002/Retirement&oldid=311069440.
74. Ragesoss, 'Making Money with Free Photos', Wikipedia Signpost, 31 May 2010, https://secure.wikimedia.org/wikipedia/en/wiki/Wikipedia:Wikipedia_Signpost/2010-05-31/Photography. Unlike content under 'GFDL 1.2 or later versions', which was also under version 1.3 when it became available, then could be relicensed to CC-BY-SA, a work with 'GFDL 1.2 only' would be only under GFDL and could not be relicensed without the author's permission.
75. Meinungsbilder/GFDL 1.2-only für Dateien, https://secure.wikimedia.org/wikipedia/de/wiki/Wikipedia:Meinungsbilder/GFDL_1.2-only_f%C3%BCr_Dateien (in German).
76. Wikimedia Commons, 'Village Pump', https://secure.wikimedia.org/wikipedia/commons/w/index.php?title=Commons:Village_pump&oldid=41101847.

In short, on the issue of user privacy, one can see that the WMF has largely served its designated function as an institutional buffer in Wikipedia's network. The community has a strong voice in deciding the substance of WMF's privacy-related policies. The current WMF privacy policy and data retention policy not only respond to the needs of the privacy-conscious community, but also enhance the community's autonomy by limiting the possibility of external intervention – thus allowing the community to remain open to anonymous editors.

If the privacy policy is 'one of the nearest thing[s] to define terms of agreements between WMF and editors', as characterized by Florence Nibart-Devouard – then chair of the Board –,[77] the Licensing Policy can be seen as one of the nearest things that defines the goals shared by the WMF and the community – i.e., what it means to provide a *free and* quality encyclopedia to the world. There has not been much external challenge of WMF's immunity status under the DMCA.[78] The repeating debate of licensing and freedom mainly rose from the disagreements within the community.

The license migration in 2009 furthered the community's commitment to providing free content. Procedurally, the community remains the source of authority, whose final decisions will be implemented by the WMF. Nevertheless, the WMF played an active role both in the internal and external negotiations, though it was conscientious about its lack of legitimacy. Sue Gardner, WMF's executive director, characterized the process as a 'long campaign', initiated by 'people in leadership positions' who did not have 'the moral or legal right to make the switch', negotiating with the FSF and persuading the community.[79] Her language leaves open whether the term 'Wikimedia' is the WMF or the community. In the process of adopting the 2007 licensing policy and relicensing in 2009, disagreements within the community persisted even after a long persuasion process. I suggest that those who hold the majority opinion of the community leveraged the WMF and its institutional position as the server operator and reinforced a definition of 'free content'.

We also see that while the community refines the *interessement* device to provide the kind of free and quality encyclopedia according to the prevailing idea of freedom within the community, the *enrolment* of some individual contributors became challenging. Eyeing the potential personal gains from their works – a link that connects these contributors to other entities, e.g., commercial reusers – some left, and some sought to retain more authorial control by

77. Florence Nibart-Devouard, posting to Foundation-l, 14 June 2008, http://www.gossamer-threads.com/lists/wiki/foundation/135681#135681.
78. Mike Godwin (mnemonic1), 'IRC Office Hours/Office Hours 2009-10-19', http://meta.wikimedia.org/wiki/IRC_office_hours/Office_hours_2009-10-09 ('[I] typically get only one or two true takedown notices a year. [I] always thought [I] would get more, but our community is very good at removing infringing material before a copyright owner complains to us.').
79. Looking back in 2010, Gardner highlighted the license migration as an example about 'good patterns of leadership and change-making' at Wikimedia. See Sue Gardner, 'Making Change at Wikimedia: Nine Patterns That Work', Sue Gardner's Blog, 9 November 2010, http://suegardner.org/2010/11/09/making-change-at-wikimedia-nine-patterns-that-work/.

uploading their works to Wikimedia projects only under GFDL. The GFDL was initially part of the *interessement* device in Wikipedia's network, included to facilitate collaborations. Its use as a strategy for personal gains underlines the reason why the majority moved to relicense in 2009. Some other community members have drawn the line of freedom at disallowing GFDL-only uploads, such as what has been done in the De-WP.

Conclusion: Keeping the WMF under the Community's Check? – The Dynamic Relationship and the Continuous Negotiation within the Network

While the WMF has expanded significantly and professionalized in recent years, the WMF does not function as the corporate proprietor in the traditional encyclopedia model that centralizes the decision-making process and claims the ownership of the products. Every editor continues to hold the copyright of her contribution. Wikipedia remains community-run and is largely independent of the WMF. While the WMF can decide and adjust policies that have wide impacts on community practices, this paper shows that so far the community has managed to actively engage in these decision processes and that the WMF seems to have adopted these policies only when there have been efforts to seek for consensus, or when community consensus can be assumed.

Using Callon's analytical framework, I suggest that since the WMF was founded as a non-profit and legally incorporated body enlisted by the Wikipedia community to join their network, so far the community has been able to keep the WMF in its designated role – as an institutional interface between the community and society and as an institutional buffer that enhances *enrolment*. I suggest that the tensions surfacing in the policy-making process of the WMF are locales where observers can study the power relationships between the community and the WMF, which are crucial for the stability of Wikipedia's network.

Other hot spots are generating debates and their developments may be the subjects of future studies: (1) the WMF initiated the Usability Project to improve the editing interface, which has long been criticized for deterring newcomers. Some new features were not well received by experienced editors and generated extensive discussions, which have led to a reflection on the gap between the WMF staff and the volunteer contributors over the issue of engineering.[80] (2) The openness of Wikimedia projects invites potentially controversial content, and the community may reach a consensus in editorial policy that some readers might still find objectionable. In June 2010, the board requested the Executive Director (ED) to study this issue and to develop a set of recommendations for the board, and the ED contracted an external consultant to carry out the project. Samuel Klein, a community-elected board member, called it 'the most controversial resolution passed in a few quarters', questioning whether the recommendations about editorial policy should be presented to the community policy makers

80. Erik Möller, posting to Foundation-l, 8 June 2010, http://www.gossamer-threads.com/lists/wiki/foundation/199025#199025.

or to the board.[81] (3) In the 2010 annual fundraising campaign the WMF set an ambitious goal of 16 million USD and implemented several new features in the fundraising banners.[82] There were doubts about the necessity of the high figure,[83] complaints about the intrusive banners,[84] including those with Wales' portraits,[85] and questions about the aggressive blinking effects in the end of the campaign.[86] One banner featured the personal appeal of WMF's ED but initially described her as 'the Executive Director of Wikipedia', a position that does not exist. Some community members criticized the WMF for misleading the public.[87] The WMF soon corrected the banner and explained that the language choice was out of 'effectiveness' concerns since many people simply do not know about the WMF.[88] Although the WMF might have simply wanted to serve its fundraising role well, the misbranding raised the question of representation. This incident not only shows that the WMF still owes its legitimacy to the community-based projects, but that the *enrolment* of the WMF in Wikipedia's network as the institutional interface is particularly difficult, since the community would not be able to effectively cut the link between the WMF and other entities.

One may notice the existence of special WMF task forces in these hot spots. The growth of the WMF has been a source of tension between the WMF and the community. The community has raised concerns about the potential conflict between the culture of the community and the culture of the professionals. Will the 'maturity' and 'professionalization' of the WMF change the character and the agency of this organization in Wikipedia's network?

81. Samuel Klein's posting to the discussion page of the Resolution 'Commissioning Recommendations from the Executive Director' on 24 June 2010 11:48 (UTC), https://secure.wikimedia.org/wikipedia/foundation/wiki/Talk:Resolution:Commissioning_Recommendations_from_the_Executive_Director.
82. See HaeB, November 15 Launch, 'Emphasis on Banner Optimization and Community Involvement', Wikipedia Signpost, 8 November 2010, https://secure.wikimedia.org/wikipedia/en/wiki/Wikipedia:Wikipedia_Signpost/2010-11-08/Fundraiser.
83. See e.g. the discussion of the Signpost story, ibid.
84. Erik Möller, in response to criticisms by community members, acknowledged that 'Indeed, the size and graphical visibility of the banners this year [2010] have certainly pushed my own pain points as to what I consider an acceptable balance.' Erik Möller, posting to Foundation-l, 1 January 2011, http://www.gossamer-threads.com/lists/wiki/foundation/220343#220343.
85. See e.g. Strange Passerby and HaeB, 'Fundraising banners mocked', Wikipedia Signpost, 22 November 2010, https://secure.wikimedia.org/wikipedia/en/wiki/Wikipedia:Wikipedia_Signpost/2010-11-22/In_the_news, and Lumos3, HaeB, and Ohconfucius, *Fundraiser Coverages and Parodies Continue*, Wikipedia Signpost, 29 November 2010, https://secure.wikimedia.org/wikipedia/en/wiki/Wikipedia:Wikipedia_Signpost/2010-11-29/In_the_news.
86. See Domas Mituzas, posting to Foundation-l, 31 December 2010, http://lists.wikimedia.org/pipermail/foundation-l/2010-December/063266.html, and the following discussions.
87. See MZMcBride, posting to Foundation-l, 9 December 2010, http://lists.wikimedia.org/pipermail/foundation-l/2010-December/062914.html, and the following discussions.
88. Zack Exley (WMF's Chief Community Officer), posting to Foundation-l, 9 December 2010, http://lists.wikimedia.org/pipermail/foundation-l/2010-December/062932.html. His second posting on this issue, reads: 'OK, everyone – I learned my lesson! ... I was looking at it from the perspective of the reader who has never heard the word 'Wikimedia'. ... Luckily they simply think we are misspelling Wikipedia, and are donating anyways.' 10 December 2010, http://lists.wikimedia.org/pipermail/foundation-l/2010-December/062963.html.

I would like to provide my reflection on the *mobilisation* moment in the sociology of translation.[89] Many *mobiles* are produced spontaneously by community members, for example when the WMF's data analyst Erik Zachte was hired in 2008, he was already known as a community member who developed 'Wikistats', 'an amazing statistics package that reveals data about the growth and editing patterns in our [...] projects'.[90] However, recently we see that the WMF can produce or collect these *mobiles*, gather resources, initiate, and implement projects based on this information – including dedicating resources to produce more *mobiles* – in a way that is far more systematic and efficient than individual community members. The large amount of *mobiles* permitted the WMF to act as a 'center of calculation'[91] in deciding future community development. Examples include: the Strategic Planning process,[92] while inviting community involvement, allowed the WMF to set a five year plan, including an expansion from 50 employees in 2010 to around 200 in 2015;[93] the WMF is tightening relationships with local communities in large developing countries, including opening a new office in India, because the *mobiles* showed low participation and large potential from these places;[94] the fundraising goal in 2010, a huge increase from 2009, was partly set to cover WMF's costs for expansion and many planned tasks; the image banners used in the fundraising were optimized by extensive research,[95] and the effectiveness of each banner was monitored closely.[96] To be fair, these *mobiles* were not generated only by the professionals or consultants that work for the WMF; many community members were also involved. However, such community involvement does not stop us from asking if the role of the WMF is gradually changing from merely an actor recruited by the community to perform designated functions to one that is actively deciding the future development of the network – asking which new actors to recruit, which strategies to enroll them, and how to mobilize actors in the network.

Although in the Strategic Plan the WMF identifies its role as supporting the community, this is not a modest role that performs only community-designated functions, but one that is 'positively transformative' and may 'ultimately, increase the overall impact of the projects on

89. The term *mobiles* comes from Michel Callon. They include graphs and tables that can be taken into boardrooms to 'speak' for what they represent: a translation of people and things into something literally portable. See also *supra* note 2.
90. Brion Vibber, posting to Foundation-l, 2 July 2008, http://www.gossamer-threads.com/lists/wiki/foundation/137181#137181 (announcing the hire).
91. Bruno Latour, *Science in Action*, Cambridge: Harvard University Press, 1987.
92. Wikimedia Strategic Planning, 'Task Force/Strategy/Plan Overview', https://secure.wikimedia.org/wikipedia/strategy/w/index.php?title=Task_force/Strategy/Plan_overview&oldid=70029.
93. See Wikimedia Foundation, 'Minutes 17 2010, Strategy Project Update: Recap, Implications, and Revenue Strategy', https://secure.wikimedia.org/wikipedia/foundation/wiki/Minutes/April_17,_2010#Strategy_Project_Update:_Recap.2C_Implications.2C_and_Revenue_Strategy.
94. Wikimedia Strategic Planning, Strategic plan/Role of the WMF, https://secure.wikimedia.org/wikipedia/strategy/wiki/Strategic_Plan/Role_of_the_WMF.
95. See HaeB, *supra* note 82. See various links to donor surveys on the sidebar of Fundraising 2010/Updates, https://secure.wikimedia.org/wikipedia/meta/w/index.php?title=Fundraising_2010/Updates&oldid=2281539.
96. Meta-Wiki, Fundraising 2010/Banner testing/Stats/Banner history, https://secure.wikimedia.org/wikipedia/meta/wiki/Fundraising_2010/Banner_testing/Stats/Banner_history.

readers and the world'.[97] Can this quoted language look like an act of translation, projecting the WMF as the translator for actors in the Wikipedia network in the future, with an adjusted goal of *increasing the impact* of free and quality reference works? What would be at stake if the WMF replaces the community as the focal actor? Wikipedia posed a challenge to traditional encyclopedia models and the two sources of authority on which it is grounded. Would such challenges be weakened in any way if the focal actor shifted from the unconventional institution of the self-governing community to a rather conventional institution of a charity? Would Wikipedia's 'do-acracy' – the merit-based, self-governing structure – and its open structure, which differentiates it from the traditional model, be affected in any way in the kind of 'positive transformations' projected by the WMF? Would we identify this as a later version of the current network, or would we consider this a different one? And if the latter, how would it affect the stability of Wikipedia's network?

I do not think the course of future development is set, not for the community, for the WMF, or for the network as a whole. As taught by the sociology of translation, actors are always negotiating their relationships with other actors, and the actors themselves also change according to these relationships. I end this paper by quoting from the Strategic Planning's interview with a Board member (who was later elected as the chair[98]) Ting Chen, which proves my point:

> Well, the ideal is professionalize. The community would in this case [moving to a Greenpeace or Red Cross model] play a less and less role, while professionals would slowly take over. This is ridiculous to say, especially from a board member, and even a community elected board member, but I think this is a possibility, if we want it this way.
>
> As I had already mentioned at the beginning of the interview personally I am more conservative and would prefer a small Foundation, not a Red Cross or Green Peace like Foundation. I am also totally aware that the community is mostly against professionalization of our projects. But we are on a strategic planning process. And as such it should be allowed to think about all possibilities. I had expressed this alternative as a possibility, but it doesn't mean that I wish this to happen. Indeed my personal preference is, as mentioned, another'.[99]

97. *Supra* note 94.
98. Ting Chen became the chair of the board in July 2010. Wikimedia Foundation, 'Board of Trustees', http://wikimediafoundation.org/w/index.php?title=Board_of_Trustees&oldid=57307.
99. Wikimedia Strategy Wiki, Interviews/Ting Chen, conducted on 11 September 2009, http://strategy.wikimedia.org/w/index.php?title=Interviews/Ting_Chen&oldid=54199.

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APPENDICES

CRITICAL POINT OF VIEW CONFERENCES

'WIKIWARS' CONFERENCE I: BANGALORE, INDIA 12-13 JANUARY 2010

The first conference of the Critical Point of View – WikiWars, was organized by the Centre for Internet & Society, Bangalore, India, in collaboration with the Institute of Network Cultures, Amsterdam, the Netherlands.

Organized by: Centre for Internet and Society
Location: The Energy Resource Institute, Bangalore
Concept: Geert Lovink and Sabine Niederer
Editorial board: Johanna Niesyto, Nishant Shah, Nathaniel Tkacz and Sunil Abraham
Copyediting: Prasad Nambiar
Special thanks to Anne Marie Dacosta

Tuesday, January 12
9.45-12.15 > Session 1 **Wiki Theory**
Moderator: Geert Lovink (NL)
Shun-ling Chen (TW/US), Stuart Geiger (US), Beatriz Cintra Martin (BR), Dipti Kulkarni (IN)

13.15-15.00 > Session 2 **Global Politics of Exclusion**
Moderator: Asha Achuthan (IN)
Mark Graham (UK), Alok Nandi (CD/BE), Dror Kamir (IL)

15.15-16.45 > Session 3 **Critique of Free and Open**
Moderator: Sunil Abraham (IN)
Linda Gross (DE), Heather Ford (ZA), Elad Wieder (IL), Nathaniel Tkacz (AU)

Wednesday, January 13
9.00-11.30 > Session 4 **Wikipedia and Education**
Moderator: Nishant Shah (IN)
Usha Raman (IN), Nupoor Rawal & Srikiet Tadepalli (IN)

11.45-13.30 > Session 5 **Wikipedia and the Place of Resistance**
Moderator: Amie Perry (TW)
William Buetler (US), Eric Ilya Lee (TW), Zona Yi-Ping Tsou (TW)

14.30-16.30 > Session 6 **Wikipedia and Critique of Western Knowledge Production**
Moderator: Zainab Bawa (IN)
Johanna Niesyto (DE), Eric Zimmerman (IL), Stian Håklev (NO/CA), Han Teng Liao (TW)

16.45-17.30 > Session 7 **Wikipedia and Art**
Moderator: Namita Malhotra (IN)
Scott Kildall (US) and Nathaniel Stern (AU), Rut Jesus (PT/DK) and Anne Goldenberg (CA)

CRITICAL POINT OF VIEW CONFERENCE II: AMSTERDAM, THE NETHERLANDS 26-28 MARCH 2010.

Organized by: Institute of Network Cultures
Location: Public Library Amsterdam
Concept: Geert Lovink and Sabine Niederer
Editorial board: Johanna Niesyto, Nishant Shah, Nathaniel Tkacz and Sunil Abraham
Research: Juliana Brunello
Project manager: Margreet Riphagen
Producer: Serena Westra
Copyediting: Marije van Eck and Prasad Nambiar
Special thanks to Anne Marie Dacosta and Rachel Somers Miles

Friday, March 26, 2010
10.15 – 12.30 > Session 1
Moderator: Geert Lovink (NL)
Ramón Reichert (AU), Jeanette Hofmann (DE), Mathieu O'Neil (AU), Gérard Wormser (FR)

13.30 – 15.30 > Session 2 **Encyclopedia Histories**
Moderator: Nathaniel Tkacz (AU)
Joseph Reagle (USA), Charles van den Heuvel (NL), Dan O'Sullivan (UK), Alan Shapiro (USA/DE)

15.45 – 17.30 > Session 3 **Wiki Art**
Moderator: Rachel Somers Miles (CA)
Scott Kildall (USA), Patrick Lichty (USA), Hendrik-Jan Grievink (NL)

Saturday, March 27, 2010
10.00 – 12.30 > Session 4 **Wikipedia Analytics**
Moderator: Nishant Shah (IN)
Felipe Ortega (ES), Stuart Geiger (USA), Esther Weltevrede and Erik Borra, Hans Varghese Mathews (IN)

13.30 – 15.30 > Session 5 **Designing Debate**
Moderator: Caroline Nevejan (NL)
Andrew Famiglietti (UK), Teemu Mikkonen (FI), Florian Cramer (NL), Lawrence Liang (IN)

15.45 – 17.30 > Session 6 **Global Issues and Outlooks**
Moderator: Johanna Niesyto (DE)
Mayo Fuster Morell (IT), Amit Basole (IN), Maja van der Velden (NL/NO), Athina Karatzogianni (UK)

CRITICAL POINT OF VIEW
CONFERENCE III: LEIPZIG, GERMANY
24-26 SEPTEMBER 2010

Konzept & Konferenzredaktion: Geert Lovink, Johanna Niesyto und Andreas Möllenkamp
Online- & Programmheftredaktion: Johanna Niesyto, Andreas Möllenkamp und Tobias Prüwer
Organisation & Veranstaltungsmanagement: Andreas Möllenkamp
Pressearbeit: Tobias Prüwer
Grafik: Ayumi Higuchi und Stefan Höhne

Freitag, 24. September 2010
Ort: Geisteswissenschaftliches Zentrum der Universität Leipzig (GWZ)
10.00 – 14.00 **Wikipedia-Workshop**

15.00 – 18.00 **Netzwerktreffen für Wikipedia-ForscherInnen**
Moderation: Michael C. Funke

Samstag, 25. September 2010
10.30 – 12.30 **Geschichte Und Politik Freien Wissens**
Moderation: Geert Lovink
Ulrich Johannes Schneider, Felix Stalder, Christian Stegbauer

13.30 – 15.30 **Digitale Governance**
Moderation:Johanna Niesyto
Ramón Reichert, Leonhard Dobusch, Christian Pentzold

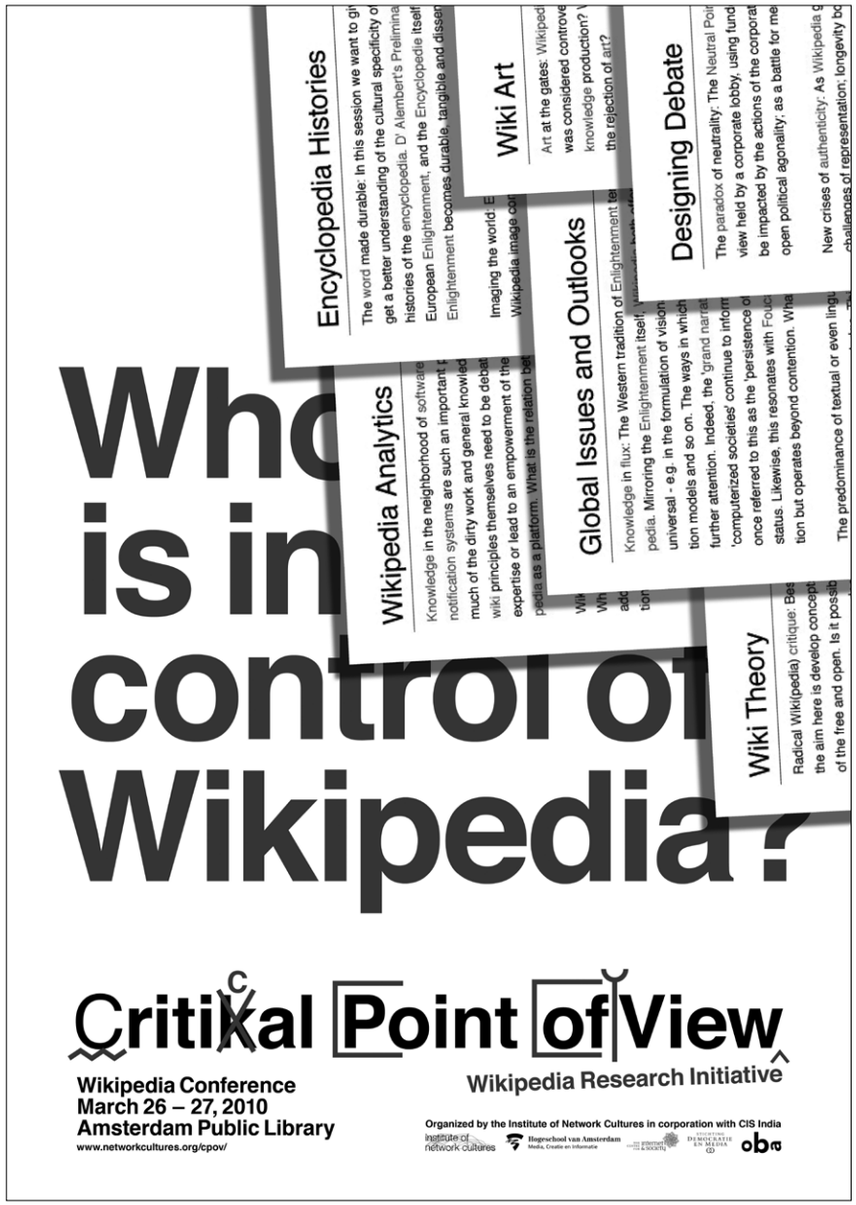
16.00 – 18.00 **Wikipedia Und (Politische) Bildung**
Moderation: Thorsten Schilling
Peter Haber, Timo Borst, Ute Demuth

20:00 – 22:00 **Roundtable Wikipedia Und Wissenschaft**
Impulsreferat: René König
Moderation: Denis Barthel

Sontag, 26. September 2010
10.00 – 11.00 **Wissens(Re)Präsentationen**
Moderation: Ulrich Johannes Schneider
Rainer Hammwöhner, Gabriele Blome

11.00 – 12.00 **Die Zukunft Der Wissensgesellschaft**
Moderation: Johanna Niesyto
Sabria David, Alan N. Shapiro

12.30 – 14.00 **Podiumsdiskussion**
PodiumsteilnehmerInnen: Geert Lovink, Thomas König, Anne Roth und Mathias Schindler
Moderation: Anja Krieger



STUDIES IN NETWORK CULTURES

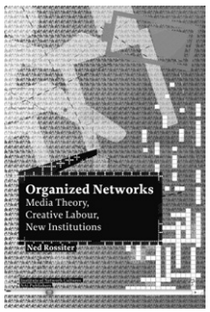
Studies in Network Cultures is a book series that investigates concepts and practices special to network cultures. Network cultures can be understood as social-technical formations under construction. They rapidly assemble, and can just as quickly disappear, creating a sense of spontaneity, transience and even uncertainty. How to conduct research within such a shifting environment is a key interest to this series. Studies in Network Cultures are edited by Geert Lovink, and published by NAi Publishers, Rotterdam and the Institute of Network Cultures in Amsterdam.

For more information please visit:
www.networkcultures.org/publications/studies-in-network-cultures

NAi Publishers
/Uitgevers

institute of
network cultures

NED ROSSITER
ORGANIZED NETWORKS: MEDIA THEORY, CREATIVE LABOUR, NEW INSTITUTIONS

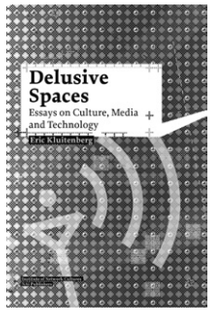


The celebration of network cultures as open, decentralized, and horizontal all too easily forgets the political dimensions of labour and life in informational times. Organized Networks sets out to destroy these myths by tracking the antagonisms that lurk within Internet governance debates, the exploitation of labour in the creative industries, and the aesthetics of global finance capital. Cutting across the fields of media theory, political philosophy, and cultural critique, Ned Rossiter diagnoses some of the key problematics facing network cultures today. Why have radical social-technical networks so often collapsed after the party? What are the key resources common to critical network cultures? And how might these create conditions for the invention of new platforms of organization and sustainability? These questions are central to the survival of networks in a post-dotcom era. Derived from research and experiences participating in network cultures, Rossiter unleashes a range of strategic concepts in order to explain and facilitate the current transformation of networks into autonomous political and cultural 'networks of networks'.

Australian media theorist Ned Rossiter works as a Senior Lecturer in Media Studies (Digital Media), Centre for Media Research, University of Ulster, Northern Ireland and an Adjunct Research Fellow, Centre for Cultural Research, University of Western Sydney, Australia.

ROTTERDAM/AMSTERDAM, 2006
ISBN 90-5662-526-8 / 252 PAGES

ERIC KLUITENBERG
DELUSIVE SPACES: ESSAYS ON CULTURE, MEDIA AND TECHNOLOGY

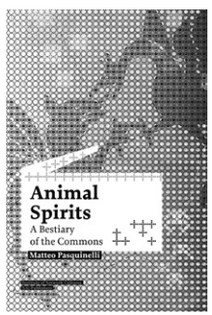


The once open terrain of new media is closing fast. Market concentration, legal consolidation and tightening governmental control have effectively ended the myth of the free and open networks. In *Delusive Spaces*, Eric Kluitenberg takes a critical position that retains a utopian potential for emerging media cultures. The book investigates the archaeology of media and machine, mapping the different methods and metaphors used to speak about technology. Returning to the present, Kluitenberg discusses the cultural use of new media in an age of post-governmental politics. *Delusive Spaces* concludes with the impossibility of representation. Going beyond the obvious delusions of the 'new' and the 'free', Kluitenberg theorizes artistic practices and European cultural policies, demonstrating a provocative engagement with the utopian dimension of technology.

Eric Kluitenberg is a Dutch media theorist, writer and organizer. Since the late 1980s, he has been involved in numerous international projects in the fields of electronic art, media culture, and information politics. Kluitenberg heads the media program at De Balie, Centre for Culture and Politics in Amsterdam. He is the editor of the *Book of Imaginary Media* (NAi Publishers, 2006) and the theme issue 'Hybrid Space' of *Open*, journal on art and the public domain (2007).

ROTTERDAM/AMSTERDAM, 2007
ISBN 978-90-5662-617-4 / 250 PAGES

MATTEO PASQUINELLI
ANIMAL SPIRITS: A BESTIARY OF THE COMMONS

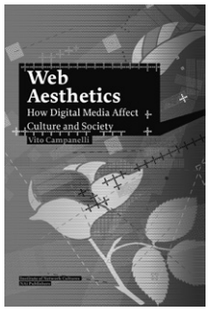


After a decade of digital fetishism, the spectres of the financial and energy crisis have also affected new media culture and brought into question the autonomy of networks. Yet activism and the art world still celebrate Creative Commons and the 'creative cities' as the new ideals for the Internet generation. Unmasking the animal spirits of the commons, Matteo Pasquinelli identifies the key social conflicts and business models at work behind the rhetoric of Free Culture. The corporate parasite infiltrating file-sharing networks, the hydra of gentrification in 'creative cities' such as Berlin and the bicephalous nature of the Internet with its pornographic underworld are three untold dimensions of contemporary 'politics of the common'. Against the latent puritanism of authors like Baudrillard and Žižek, constantly quoted by both artists and activists, Animal Spirits draws a conceptual 'book of beasts'. In a world system shaped by a turbulent stock market, Pasquinelli unleashes a politically incorrect grammar for the coming generation of the new commons.

Matteo Pasquinelli is an Amsterdam-based writer and researcher at the Queen Mary University of London and has an activist background in Italy. He edited the collection *Media Activism: Strategies and Practices of Independent Communication* (2002) and co-edited *C'Lick Me: A Netporn Studies Reader* (2007). Since 2000, he has been editor of the mailing list Rekombinant (www.rekombinant.org).

ROTTERDAM/AMSTERDAM, 2008
ISBN 978-90-5662-663-1 / 240 PAGES

VITO CAMPANELLI
WEB AESTHETICS: HOW DIGITAL MEDIA AFFECT CULTURE AND SOCIETY

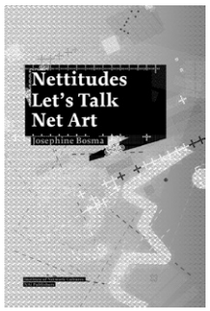


Online video, Web interfaces, file sharing, mailing lists and social networks are transforming our experience of the world. While the social dimension of these Web-related forms dominates public discourse, their aesthetic impact is largely ignored. In response, *Web Aesthetics* intervenes in the field of new media studies and art theory, proposing an organic theory of digital media aesthetics. Italian media theorist Vito Campanelli tracks the proliferation of Web technologies, platforms and software and offers a catalogue of aesthetic strategies to address their profound cultural impact. As Campanelli argues, when the Web is located inside sociocultural practices, processes and expressions, it becomes a powerful agent of aestheticization of life on a global scale.

Vito Campanelli lectures on the theory and technology of mass communication at the University of Naples–L'Orientale. He is a freelance curator of digital culture events and co-founder of MAO – Media & Arts Office. His essays on media art are regularly published in international journals.

ROTTERDAM/AMSTERDAM, 2010
ISBN 978-90-5662-770-6 / 276 PAGES

JOSEPHINE BOSMA
NETTITUDES: ON A JOURNEY THROUGH NET ART



During the nineties net art burst onto the scene as a radical reflection on the role of technology in contemporary art. In Nettitudes Dutch art critic Josephine Bosma catalogues this tumultuous history as art became situated in the material dimensions of the internet, from the spectacular interventions of the first decade to today's dispersed practices, including online acoustics, poetry and archiving. Never the darling of the media art institutions and ignored by many curators and critics since its emergence, net art still persists as a 'non-movement' in the cracks of contemporary media culture. This book provides an analytical foundation and insider's view on net art's many expressions as it grapples with the aesthetic, conceptual and social issues of our times.

Josephine Bosma is an Amsterdam-based journalist and critic commenting on the fields of art and new media since 1993. One of the first to probe into and engage with the domain of net art, her pioneering work is published internationally in books, periodicals and catalogues.

ROTTERDAM/AMSTERDAM, FORTHCOMING APRIL 2011
ISBN 978-90-5662-800-0 / 272 PAGES

AUTHOR BIOGRAPHIES

Almila Akdag Salah obtained her PhD degree from UCLA in 2008, focusing on techno-science art and its place in the art historical canon. At UCLA, she became one of the first Digital Humanities Fellows. Her focus as a fellow was on citation networks, through which she aimed to map out the network of three semi-related disciplines' (cognitive science, visual culture, and art history) interaction with each other. Currently, she is postdoctoral researcher with the Virtual Knowledge Space (KNAW) – Knowledge Space Lab project in the Netherlands, which contributes to the new research area of 'maps of science'.

Nicholas Carr writes on the social, economic, and business implications of technology. He is the author of *The Big Switch: Rewiring the World, from Edison to Google* and *Does IT Matter?* His new book, *The Shallows: What the Internet Is Doing to Our Brains*, was published in 2010. Carr has written for many periodicals, including *The Atlantic Monthly, The New York Times Magazine, Wired, The Financial Times, Die Zeit, The Futurist*, and *Advertising Age* and has been a columnist for *The Guardian* and *The Industry Standard*. Carr has been a speaker at MIT, Harvard, Wharton, the Kennedy School of Government, NASA, and the Federal Reserve Bank of Dallas, as well as at many industry, corporate, and professional events throughout the Americas, Europe, and Asia. He holds a BA from Dartmouth College and an MA in English and American literature and language, from Harvard University.

Shun-ling Chen is a doctoral candidate at Harvard Law School. She is interested in the self-governance of alternative communities, both online and offline, and how such communities negotiate with mainstream norms and values. She holds an LLM from National Taiwan University as well as from Harvard Law School. She was a legal intern at the Wikimedia Foundation in 2008. She co-founded Creative Commons Taiwan and is on the advisory board of FLOSS Manuals. Her publications include: FOSS: Licensing, an e-Primer (UNDP-ADPIP and IOSN, Elsevier*, *2006); Freedom as in a Self-sustainable Community: the Free Software Movement and Its Challenge to Copyright Law, Policy Futures in Education, 4(4), 2006; To Surpass or to Conform – What are Public Licenses For? University of Illinois Journal of Law, Technology and Policy 2009(1); Wikipedia: A Republic of Science Democratized, Albany Law Journal of Science and Technology, 20(2), 2010; and Collaborative Authorship: from Folklore to the Wikiborg, University of Illinois Journal of Law, Technology and Policy 2011(1).

Florian Cramer, born 1969 in Berlin, Germany, has been the head of the research project Communication in a Digital Age since 2008, and since 2006 the head of the master study networked media program at the Piet Zwart Institute of the Willem de Kooning Academy Rotterdam University, Rotterdam, The Netherlands.

Morgan Currie is an American writer and researcher who received a Masters degree in New Media at the University of Amsterdam. Her related topics of interest include digital archives, open access publishing, and sustainability of the commons. Currently she is researching for the Institute of Network Cultures in Amsterdam. Prior to her current work she spent eight

years as a researcher and producer of documentary films for American public television and GOOD Magazine.

Edgar Enyedy was born in Oxfordshire, England, and raised in several countries. His formal training is in Philology and Computer Science and he holds a Master's degree in Communications Systems and Networking (Polytechnic University of Madrid). He has worked as a journalist, editor, researcher and teacher. He has published in the areas of statistics and social science. He has spent a lot of time working on issues related to networking protocols and has a long history of involvement with the Internet, dating back to 'the old Usenet days' (his words). Besides some community-based projects, Edgar is currently steering clear of public life, living in a very small town by the seaside.

Andrew Famiglietti is a Brittain Post-Doctoral Fellow at the Georgia Institute of Technology. His dissertation *Hackers, Cyborgs, and Wikipedians* investigates the political economy of Wikipedia and related wiki-based websites. His research interests include cultural studies, new media, participatory culture, and the copyleft movement. Moreover, he is currently developing applications for wiki software in the composition classroom.

Heather Ford is a South African social entrepreneur, researcher, and writer currently enrolled as a graduate student at the UC Berkeley iSchool, where she is researching collaboration and the governance of global online communities. She is a former Wikimedia Foundation Advisory Board member and the former executive director of iCommons, an international organization started by Creative Commons to connect the open education, access to knowledge, free software, open access publishing, and free culture communities around the world. She was a co-founder of Creative Commons South Africa and of the South African non-profit, the African Commons Project, as well as a community-building initiative called the GeekRetreat that brought together South Africa's top Web thinkers to talk about how to make the local internet better.

Mayo Fuster Morell is currently a postdoctoral researcher at the Institute of Government and Public Policies (Autonomous University of Barcelona) and visiting scholar at the Internet Interdisciplinary Institute (Open University of Catalonia). She is also member of the research committee of the Wikimedia Foundation, the Association Amical Viquipedia, and the scientific committee of the Critical studies in peer processes journal. She collaborates in research projects on Wikipedia with Science Po and the Berkman center of Internet and Society. Additionally, she is co-founder of the International Forum on Free Culture and Digital Rights, promotor of Networked Politics collaborative research and developed techno-political tools within the frame of the World Social Forum. She recently concluded her PhD thesis at the European University Institute. She explored relationship between governance models and participation and collaboration growth. She combined a large N statistical analysis and case study comparisons (World Social Forum, Flickr, Wikihow and Wikipedia). She co-wrote the books *Rethinking Political Organisation in an Age of Movements and Networks* (2007), *Activist Research and Social Movements* (in Spanish, 2005), and *Guide for Social Transformation of Catalonia* (in Catalan, 2003).

Cheng Gao has been at the Virtual Knowledge Studio since 2009 as a scientific programmer. She holds a BS in computer science from Beijing Language and Culture University (BLCU) and an MS in computer science from Beijing University of Posts and Telecommunications (BUPT). Her master's thesis, 'The Application of Flow Label in QoS Management for Next Generation Network', was based partly on the research outcomes from a project sponsored by the National Natural Science Foundation of China in Network Information Center (BUPT, Beijing, China), where she worked while completing her degree.

Stuart Geiger is a doctoral student in the School of Information at the University of California, Berkeley. A computational ethnographer, he studies knowledge production in distributed and decentralized organizations. Stuart's research currently focuses on the social roles of software in the operation and maintenance of Wikipedia and scientific research networks. He uses a variety of qualitative and quantitative methods and is influenced by a number of disciplines, including media and communication studies, science and technology studies, critical software studies, and information science.'

Mark Graham is a Research Fellow at the Oxford Internet Institute. His work focuses on the geographies of the internet and uses of ICT for development. His research can be divided into three categories: ICT for development (particularly work focused on Thailand and East Africa; his published papers can be accessed at geospace.co.uk); hybrid urban spaces and the politics of virtual globes (much of his work in this category is available on the floatingsheep.org blog); and nonproximate transparency and economic reorganization (see for example the wikichains.com project he recently started).

Gautam John used to be a lawyer with a focus on copyright law and has also been an entrepreneur. He is passionate about education, equality, and equity and focuses on 'access' as a way to achieve these. Gautam was a TED India Fellow in 2009 and is a Creative Commons supporter. He works with the Akshara Foundation where he manages the Karnataka Learning Partnership project, Pratham Books, and is an advisor to Inclusive Planet. He is a founding member of Wikimedia Chapter (India) and currently serves as Secretary on the Executive Committee.

Dror Kamir, whose user name in Wikipedia is DrorK, works mainly in the fields of natural language processing and translation. He became active in the Hebrew Wikipedia in April 2005, and then in the Arabic and English Wikipedias but is currently on a long 'Wiki vacation' from all three. He is instead focusing on promoting free-content policy in Israel as a board member of Wikimedia Israel, of which he was one of the founders, and as a volunteer of the Wikimedia Foundation. In Wikimania 2008 in Alexandria, Egypt, he delivered the presentation 'Cross-Cultural Dialog through Wikipedia'.

Peter B. Kaufman is president and executive producer of Intelligent Television in New York. Intelligent Television produces films, television, and video in close association with universities, museums, libraries, and archives, as well as with the world's leading producers, directors, and cinematographers. Kaufman serves as co-chair of the JISC Film & Sound Think Tank; an access consultant for the Library of Congress Division of Motion Picture, Broadcasting, and Recorded Sound; and co-chair of the Copyright Committee of the Association of Moving Image Archivists. He also serves on the advisory boards of EUscreen; OpenCast; and

the World Policy Journal. Educated at Cornell and Columbia, Kaufman has written about media and society for the *New York Times, The Nation, First Monday, Slavic Review, Publishers Weekly,* and the *Times Literary Supplement*, among others.

Scott Kildall is a cross-disciplinary artist working with video, installation, prints, sculpture, and performance. He gathers material from the public realm as the crux of his artwork in the form of interventions into various concepts of space. He has a BA in political philosophy from Brown University and a MFA from the School of the Art Institute of Chicago through the Art and Technology Studies Department. He exhibits his work internationally in galleries and museums. He has received fellowships and awards from organizations including the Kala Art Institute, The Banff Centre for the Arts, Turbulence.org, and the Eyebeam Art + Technology Center.

Lawrence Liang is a one of the co-founders of Alternative Law Forum (ALF), a collective of lawyers working on various socio-legal issues. His key areas of interest are law, technology, and culture, as well as the politics of copyright. He has been working closely with Sarai, New Delhi, on a joint research project Intellectual Property and the Knowledge/Culture Commons. A keen follower of the open source movement in software, Lawrence is the author of *Sex, Laws and Videotape* and has lectured at various universities, including Yale, Stanford, and Columbia.

Patrick Lichty has been a digital intermedia designer, artist, writer, and independent curator for more than 15 years. His work comments upon the impact of technology on society and how it shapes the perception of the world around us. He works in diverse technological media, including printmaking, kinetics, video, generative music, and neon. Venues in which he has been involved with solo and collaborative works include the Whitney and Venice Bienniales, as well as the International Symposium on the Electronic Arts (ISEA). Patrick Lichty is editor-in-chief of *Intelligent Agent*, an electronic arts/culture journal based in New York City, and featured in the new documentary by the makers of *American Movie*, called *The Yes Men*.

Geert Lovink is a Dutch-Australian media theorist, critic, and founding director of the Institute of Network Cultures. He holds a PhD from the University of Melbourne in Australia and was Post Doctorate Fellow at the Centre for Critical and Cultural Studies, University of Queensland in 2003. In 2004 Geert Lovink was appointed Research Professor at the Amsterdam University of Applied Sciences and Associate Professor at the University of Amsterdam. He is the founder of internet projects such as nettime and fibreculture. He authored the books *Dark Fiber* (2002), *Uncanny Networks* (2002), and *My First Recession* (2003). In 2005–06 he was a fellow at the Wissenschaftskolleg Berlin Institute for Advanced Study, where he finished his third volume on critical Internet culture, *Zero Comments* (2007).

Hans Varghese Mathews read philosophy as an undergraduate at the University of Southern California, studying logic and aesthetics, and went on to obtain a doctorate in mathematics from the University of Wisconsin, studying algebraic topology primarily, with mathematical logic and philosophy as subsidiary subjects. He has been a research associate with the Indian Statistical Institute and has written extensively on visual art for *Frontline*. He currently

directs mathematical modeling for an analytics firm and is a contributing editor to the online journal *Phalanx*. He has an abiding interest in the formal understanding of painting and poetry and a more recent and dominating interest in the mathematization of the social sciences.

Johanna Niesyto is a PhD student in political sciences. She works as a research fellow in the project 'changing protest and media cultures' at the collaborative research center 'Media Upheavals' (University of Siegen, Germany). Her key interests cover globalization, public spaces, democracy, political campaigns, contentious politics, political consumerism, cyberculture, and social web. In her thesis, she looks at Wikipedia as a translingual public space of political knowledge production. Johanna is co-editor/author of *Politik mit dem Einkaufswagen* (Politics with the shopping trolley; Bielefeld 2007, together with S. Baringhorst, V. Kneip and A. Marz), *Political Campaigning on the Web* (Bielefeld 2009, together with S. Baringhorst and V. Kneip), *Protest Online/Offline* (Wiesbaden 2010, together with S. Baringhorst, V. Kniep and A. Marz).

Mathieu O'Neil lectures in American civilization at the Université Paris Sorbonne – Paris IV and is an adjunct research fellow at the ANU's Australian Demographic and Social Research Institute, where he co-founded the Virtual Observatory for the Study of Online Networks in 2005. He also worked as a magazine editor, designer, and exhibition curator. His PhD, completed in 1996, surveyed zine networks in the San Francisco Bay area. In 2009 he published his book *Cyberchiefs: Autonomy and Authority in Online Tribes,* and he founded and became the editor of the journal *Critical Studies in Peer Production*. In 2010 he joined the board of Les Amis du Monde Diplomatique.

Daniel O'Sullivan is a retired lecturer and teacher and a freelance writer and historian. He has degrees in history from the universities of Cambridge and East Anglia. He is the author of numerous books including, most recently, *In Search of Captain Cook* (2008) and *Wikipedia: a New Community of Practice* (2009). He lives in North Yorkshire, England.

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CRITICAL POINT OF VIEW

A Wikipedia Reader

EDITED BY

GEERT LOVINK AND **NATHANIEL TKACZ**

INC READER #7

For millions of internet users around the globe, the search for new knowledge begins with Wikipedia. The encyclopedia's rapid rise, novel organization, and freely offered content have been marveled at and denounced by a host of commentators. *Critical Point of View* moves beyond the unflagging praise, well-worn facts, and expert versus amateur debate to unveil the complex, messy, and controversial realities of a distributed knowledge platform.

The essays, interviews and artworks brought together in this reader form part of the overarching Critical Point of View research initiative, which began with a conference in Bangalore (January 2010), followed by events in Amsterdam (March 2010) and Leipzig (September 2010). With an emphasis on theoretical reflection, cultural difference and indeed, critique, contributions to this collection ask: What values are embedded in Wikipedia's software? On what basis are Wikipedia's claims to neutrality made? How can Wikipedia give voice to those outside the Western tradition of Enlightenment, or even its own administrative hierarchies? *Critical Point of View* collects original insights on the next generation of wiki-related research, from radical artistic interventions and the significant role of bots to hidden trajectories of encyclopedic knowledge and the politics of agency and exclusion.

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Institute of Network Cultures, Amsterdam 2011

ISBN 978-90-78146-13-1

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institute of network cultures

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Media, Creatie en Informatie

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