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Rethinking the Materiality of Technical Media: Friedrich Kittler, *Enfant Terrible* with a Rejuvenating Effect on Parental Discipline – A Dialogue

Geoffrey Winthrop-Young and Annie van den Oever

Friedrich Kittler, Professor of Aesthetics and Media History at Humboldt University, Berlin, who passed away in 2011, is generally considered to be the intellectual father of the relatively new discipline of media archaeology. Most, if not all of his work was written in an academic German one can safely label as complex, dense, and highly idiosyncratic. Moreover, Kittler never hesitated to be provocative or thought-provoking. Unsurprisingly, he was controversial and often misunderstood. In retrospect, however, most media scholars agree that Kittler is one of the most important media theorists of the past thirty years.

A very early reader of Kittler's work, the Vancouver-based Professor of German, Geoffrey Winthrop-Young, having attended Kittler's early career lectures in Germany as a very young student, developed into an insider with expert knowledge of Kittler's texts, sources, shifts, affinities, and Kittler's "supreme media-theoretical trinity," Shannon, Heidegger, and Turing. He was among the first to introduce Kittler's work to the English-speaking world. His *Kittler and the Media* (2011) provides a concise, yet sophisticated and slightly provocative overview of Kittler's works and is the ideal introduction to Kittler's work, according to many. Additionally, he wrote *Friedrich Kittler zur Einführung* (2005) and numerous essays on German media theory, media archaeology, so-called cultural techniques, and systems theory.¹ He co-edited two collections of essays on Kittler and is the co-translator (with Michael Wutz) of Kittler's *Gramophone, Film, Typewriter* (1999). At this point in time, he is working on *Media, Systems, Spheres*, a book on German (media and systems) theory with special emphasis on Kittler and Niklas Luhmann (among others).

A dialogue with Geoffrey Winthrop-Young on Kittler and media archaeology was initiated by me for the very reason that Kittler's work had a profound impact on the international community of film, media, communication, and cultural

studies; a profound assessment of his impact on the fields of film and media studies could not be missed in this book.²

As to the format of this dialogue: it will start with some introductory questions regarding the context in which Kittler was working in an early phase of his career and the ways in which Geoffrey Winthrop-Young became acquainted with him and his work as a student in Germany in the early 1980s. Secondly, some provocative and iconoclastic aspects of Kittler's work will be explored. Thirdly, one of Kittler's crucial terms, "technische Medien" [technical media], will be analyzed (in relation to Rudolph Arnheim); and the critique of "technodeterminism" regularly being made against him will be addressed. Fourthly, his relation to, and relevance for, the field of film studies will be assessed more elaborately. Lastly, McLuhan's impact on Kittler's work (if any) will be discussed in more detail, as part of a retrospective assessment of his work.

– Annie van den Oever

How It All Started

AvdO: So let me simply start with stating that reading Friedrich Kittler was for very many years the exclusive privilege of a relatively small community of scholars who happened to be able to read German. As all his readers know, reading Kittler is one thing; understanding him within his context is a wholly different chapter. As you wrote in the opening pages of your *Kittler and the Media*, one simply must label Kittler *German*, though the term obviously needs some further clarifications.³ It seems to me that you, being one of his earlier readers yourself, must have felt that his work was badly in need of a proper introduction to the English-speaking world, and then decided to write the book yourself – *Kittler and the Media* – which indeed is extremely relevant and helpful for the wider community of non-German-speaking readers who want to be introduced to Kittler's complexities and idiosyncrasies with sufficient knowledge of the context in which his thinking developed. Now my question is: when did you start to read him yourself and when did you pick up on him as a tremendously interesting source for media studies?

GWY: I started reading him right after our first encounter in Freiburg in the early 1980s. Reading him was preferable to attending his seminars, which I soon stopped doing.⁴ Though I must point out that I was 19 at the time: I doubt I fully grasped what he was trying to say. Reading Kittler was often more a matter of attitude than of analysis; his texts were a cool sound experience rather than a source of critical insight. Also, I recall that I started reading him alongside the new breed of science fiction which soon came to be known as cyberpunk – and to this day this cross-reading shapes my view of Kittler. That said, I did sense back

then that he was of singular importance to the future of *literary studies*. But it was only later, when he had completed the intellectual and institutional move from literature to media, that I began to realize how important he was for the latter.

AvdO: Reading Kittler was cool, as you said. Still is cool, I guess. His first circle of readers were students and scholars. They were German mainly, if not, exclusively. Kittler was German, born and raised in the former DDR. He wrote in German. He taught in Germany, first in Freiburg and Bochum, later in Berlin, at Humboldt University. You already met him in Freiburg, in an early phase of his career, when he was in his late thirties. Could you tell us a bit more about this, also about what you then understood as “his singular importance to the future of *literary studies*” as you just labeled it.

GWY: Let’s focus on the second part of your second question and talk about national matters of literature. Kittler started out at the University of Freiburg – Heidegger’s lair – in 1963. He initially contemplated becoming either a philosopher or a Romanist but ultimately opted for *Germanistik*, the study of German language and literature (not to be confused with “German Studies”). But *Germanistik*, once the uncontested keystone species in the German humanist habitat, was turning into an anxious, unsettled discipline. Its insecurity was fuelled in part by economic downturns that directly affected the job prospects of its numerous graduates in the teaching profession. *Germanistik*, too, suffered its post-Fordist awakening. On a larger scale, however, it was the inevitable result of the demotion of literature as a medium for national self-understanding and collective *Bildung*. Books and letters were losing ground; inevitably, their slippage affected the disciplines that had grown up around them. Of course this is not a uniquely German development, yet I think it is safe to say that it was felt more strongly in Germany than in most other places because *Germanistik* had been so involved in nurturing a national identity that only later took on concrete political shape. And let’s be clear on this: No matter how unorthodox or zany Kittler’s analysis of literary texts, his treatment of them as decisive moments of cultural inscription does not stray far from their more established treatment as repositories of value and sources of *Bildung*. Their truth content may evaporate, their hermeneutic illusions may be exposed, but their efficacy and representativeness (and thus their status as privileged objects of scholarly inspection) remain unchallenged.

AvdO: Would you say that in this particular phase Kittler was part of the crisis in *Germanistik* being one of the most prominent disciplines in the humanities which were looking for new approaches, new methods as well as new ways to legitimize their academic activities and curriculum at that point in time? Moreover, would you say that he not only was part of the crisis but also of its solution? In other words, did he change the field in ways which were needed at that point in time?

GWY: I like the way you phrase that: Kittler as part of both crisis and solution. He certainly was prone to exaggerate a crisis in order to raise the profile of his solution. But no doubt there was a crisis, a crisis within *Germanistik* that incited squabbles about the necessity to modernize the discipline. The debate was further exacerbated by the delayed acceptance of the extent to which the discipline had failed under the Nazis to uphold the values it claimed to convey. Enter Kittler. He wasn't overly concerned with values, politics, or disciplinary history. In his student protest days the proletariat took a backseat to Pink Floyd. He had little interest in any socio-emancipatory-oriented overhaul of the discipline. Yet in hindsight it becomes apparent that he was engaged in a similar enterprise. He, too, wanted to modernize the study of literature, but he advocated the archaeology of its discursive and later media-technological layers and protocols. To me, this was no less a bid for relevance than attempts to infuse the study of literature with a more explicit socio-emancipatory agenda. Nobody will ever label Kittler a Marxist (though he could on occasion express a faintly Althusserian approval of the structuralist tendencies of the older, post-Parisian Marx), but his techno-Foucauldian agenda struck me as an equally strident attack on the bourgeois blather of academic routines. And it infused some of those who read and followed him with no less of an anti-establishment feeling.

However, the great irony is that Kittler thereby gave the very discipline he attacked and later abandoned a new lease on life. Before he left the house of books and letters for that of numbers and codes, he shook it up. He broadened the theoretical dimensions of literary studies by introducing so-called French theory; his insistence that literary works must be studied alongside handbooks, diagrams, manuals, and programs extended the range of disciplinary objects; and his technological bent prepared the gradual transformation of parts of German literary studies into *Kulturwissenschaften*. No doubt all of this would have happened without him, but he happened to have been there at the pivotal juncture, so give the man his props. As we know, academia and the real world operate differently. In real life, troublesome children make their parents age faster; in academia, an *enfant terrible* often has a rejuvenating effect on parental discipline.

AvdO: Would you say that *Germanistik* developed into *Literaturwissenschaft* which was not only broader than *Germanistik* (and *Philologie*) but also different in that it quickly developed a keen focus on theoretical and comparative issues – and then helped to give birth to the newer field of *Medienwissenschaft*?

GWY: Yes, all that applies. And with regard to Kittler there is a peculiar irony. While he contributed his share to the broadening of *Germanistik*, the discipline also imported many of the North American approaches that fall under the blanket heading of “cultural studies” – and which Kittler himself was quite averse to,

and which at times did their share to delay or distort his North American reception.⁵

Kittler as Iconoclast

AvdO: I have been traveling and reading and rereading Kittler, as well as your work on him and temporarily felt paralyzed by a fear to either sound smug or too ironic when addressing one of the main topics – or worries – in a question to you. Nevertheless. As to my worries: the topic of the war and media; his obvious provocations; Kittler and women – his full-fledged misogyny, as many feel. Of course you have already addressed them all in your last chapter of *Kittler and the Media*, and elsewhere.

GWY: ... and while we're ticking off the trouble spots, let's add his views of the achievements (or lack thereof) of certain cultures located to the east and south of ancient Greece...

AvdO: With regard to the gender issue: would you say it has harmed the relevance of his work as a media scholar with a keen interest in power relations to have neglected this one point?

GWY: Yes, but the harm arises from analysis and attitude, not from neglect. The gender issue is all over *Discourse Networks* and related texts. In fact, in this particular context neglect is a charge that should be directed at Kittler's readers rather than at him.

Let's deal with one example: *Discourse Networks* describes the "Discourse Network 1800" as composed of sexually closed data-processing circuits in which women have been relegated to the outside positions. Women inspire men to write texts for and about women that are professionally commented upon by male critics and philosophers and then read by women who are thereby inspired to be women who inspire men to write texts for and about women – and so it goes round and round and round in feedback cycles until the advent of analog media brings about an epochal rupture. But women do not write. They provide input and receive the output, but with very few exceptions (and the only exception Kittler describes in detail, Bettina von Arnim, comes across as a slightly unhinged wild woman, which strikes me as yet another male fantasy) they are excluded from processing and transmission. It's a very elegant construct brimming with all the masculinist techno coolness and bravado that has become a trademark of the Kittler effect. It effectively transforms cultural dynamics into a cybernetic circuit. Yet like all such constructs it entertains a somewhat tenuous relationship with historical reality. Did women really not produce literature? Kittler

concedes that they did so “from time to time,” but if you take the trouble to research matters or engage with the type of feminist scholarship Kittler tended to avoid, you’ll soon learn that the number of women writing was much higher than this cavalier concession indicates.⁶ However, for well over a century nobody talked about them. Kittler too mistakes the *ex post facto* silencing of writing women for their *de facto* absence.

This not only a matter of lacking historical knowledge. The problem is also that the quantitative discrepancy calls into question Kittler’s basic description. If, as some of his truly brilliant analyses have it, language acquisition and textual production were gendered to the point of extreme segregation, then how are we to account for the many women who are writing like men? And by the way, what is their social background? And that of the men who wrote? This “Discourse Network 1800” is a very bourgeois affair, and the bourgeoisie is, of course, that part of society that has perfected the skill of never naming itself to ensure that no alternative to it can be named either. But do its practices deserve to mark a total epoch? Kittler is not so much neglecting gender as class. That, however, appears to be a common affliction these days.

And yet. Think about it. We have here, produced in the late 1970s and early 1980s in Germany – that is, before the arrival of *Genderwissenschaften* (an awkward Anglo-German paste job necessary because the German language does not distinguish between sex and gender) a thorough analysis of the discursive construction of gender identity and performance that in many respects was so ahead of its German times it was almost North American. For all its failings and masculinist crankiness, it contained so much that could have been used for further discussions. But just as it takes two to tango, it takes two to break off a dance. Yes, regarding the gender issue Kittler often deserves to be taken out to the woodshed, but the blame also falls on those of his readers who should have known better than to ignore the potential of his arguments.

AvdO: On a more positive note, regarding his productivity and enduring relevance for the humanities: it seems to me that Kittler was utterly important in pushing literary studies into a new realm by addressing the communication media from a new and different perspective, assessing the materiality of the media, analyzing media as *technologies*, studying them with a keen eye on the hardware, thus pushing the field in the direction of a science of the media. Would you agree with this?

GWY: Absolutely. To put it in alliterative shorthand, Kittler was instrumental for the move from content to channel, materialism to materialities, hermeneutics to hardware.

AvdO: As to his study of the hardware, of the media technologies: would you say that thanks to the Kittlerian enterprise perhaps, as you already seem to suggest above, cultural studies should not be confused with German *Kulturwissenschaft*. In a similar way, media studies should not be confused with the Kittlerian and German brands of media sciences. There is a profound difference between these fields and approaches, generally speaking. Kittler “technologizes and extends Foucault” as you wrote.⁷ He gave Foucault’s epistemic regimes “a historical footing.”⁸

GWY: Let’s talk about Foucault. Or rather, Kittler’s Foucault – a rare creature different from the flashier Foucaults bred and raised in North America. Not even the English language has enough words to capture the many facets of Kittler’s treatment of Foucault: veneration, continuation, revision, implementation, deconstruction, occupation, vindication, sublation, redemption. There’s admiration bordering on worship – think of Kittler’s obituary of Foucault,⁹ in which he describes how he used to await Foucault’s next book like the steps of an approaching lover, or how he froze in silence the only time he ever came across Foucault in person. There’s respectful updating – there’s nothing wrong with Foucault’s elegant dismantling of discursive epistemes, Kittler argues, but they must be grounded in a similar dismantling of the materialities of communication and they must be carried passed epochs when people no longer write. And there’s a slightly smart-alecky, incipiently parricidal patronizing – he, Kittler, knows what Foucault is *really* about, or what he *really* should have done.

To understand the latter it is important to keep in mind that when Kittler is referencing Foucault, he primarily has in mind the Foucault of *The Order of Things*.¹⁰ (When the older Kittler goes Greek, his references to the older Foucault’s take on Greece are decidedly less flattering.) The impact of *The Order of Things* on Kittler is not only due to the book’s indisputable qualities, it also has to do with two crucial points that go beyond Foucault. As you know, Foucault describes a sequence of discontinuous epistemes that forestalls the ongoing presence of a central entity around which history evolves. It precludes continuity and thus the emergence of a grand subject. This, of course, brings to mind Heidegger’s equally discontinuous *Seinsgeschichte* or history of being. Indeed, especially in his later publications Kittler indulged in ever more explicit claims that Foucault was, as it were, the canniest laborer toiling in Heidegger’s vineyard.¹¹ Second, every episteme has to be analyzed in terms of discursive protocols, orders of speech, conditions for the validity of statements, and so on. This implies among other things that whatever is factually said must be seen against its unsaid possible alternatives. And this – Kittler would now pile on his famous adverbs – is simply, clearly, naturally, obviously, self-evidently a discourse-analytical redescription of one of the basic axioms of information theory. In short, Foucault was great not only because he was Foucault but also because he was a bit like Heidegger and Shannon.

AvdO: And they were the other two gods in Kittler's universe?

GWY: There were so many gods in Kittler's pantheon, and sometimes even a goddess or two... But just as in some strands of Hinduism Brahma, Vishnu, and Shiva reign above the rest, Kittler's supreme media-theoretical trinity is, arguably, composed of Shannon, Heidegger, and Turing. And serious *Medienwissenschaften* should be located between and around those three.

Technē and Technodeterminism

AvdO: I think Kittler's explanation of the crucial difference between *technische Medien* or "technical media" such as photo-, phono-, and cinematographic media, and other communication media, such as language, is highly relevant. In his words: language operates by way of a "symbolic grid" which requires that all data "pass through the bottleneck of the signifier,"¹² whereas *technische Medien* – the analog technological media – process physical effects of the real.¹³

GWY: Yes, he frequently supports this with Arnheim's famous quote which states that with the arrival of new (analog) media "reproductions are not supposed to resemble the object, but rather guarantee this resemblance by being, as it were, a product of the object in question, that is, by being mechanically produced by it."¹⁴

AvdO: He cited Arnheim's words to point at a crucial quality of the technologies which mediate photographic images, moving images, and sound: mechanically speaking, they produce an object with a resemblance to the object represented within the limits of the technology used. By implication, the technical media need to be understood in relation to art and aesthetic styles in a new and different way. First of all, because the data need not pass through the bottleneck of the signifier. And secondly, because the data contain the inevitable inscription of the technical medium itself. In your shorthand: "Arts give way to media; aesthetical styles are replaced by technical standards."¹⁵ Would you say that these pivotal insights regarding the differences between media and their implications have been made sufficiently productive in the fields of art and media studies so far?

GWY: I am tempted to respond in the negative. It has nothing to do with ignorance, that is, with not understanding the distinction. People are fully aware of the difference between paintings and photos and, by extension, between (artistic) styles and (technical) standards. I hope I am mistaken but I sometimes sense that many theorists are afraid to foreground this distinction because they may end up being charged with technodeterminism, which is a bit like being covered

in cat poo. I hope I'm wrong. But in any case, like any precise insight this one has a precise expiry date: namely, the subsequent arrival of digitally enabled simulation, which makes possible the lifelike rendition of a non-existing tree in ways that are indistinguishable from the reproduction of a real tree.

AvdO: As to technodeterminism, there seems to be something distinctly cyclical about this, meaning that the impact of new "technical media" experienced by many at the moment of introduction (say, television once broadcasting started, or the computer) sets in motion a new cycle of interest in technology (e.g., McLuhan; Kittler) with renewed complaints about technodeterminism. Would you agree there is a cyclical aspect to this, a reoccurrence of certain phenomena both on a technoperceptual as well as on a theoretical level?

GWY: I'm going off on a rant here because I feel very strongly about this. Kittler's texts – and the same applies to McLuhan, Harold Innis, and Vilém Flusser – are like Caravaggio paintings. There is a stark, often perturbing distribution of light and shadow. It is difficult enough to make sense of this chiaroscuro without adding the damn technodeterminist bogeyman. Technodeterminism – to be precise: the *accusation* of technodeterminism – is one of the most pathetic yet unfortunately also one of the most handy devices in the vast arsenal of intellectual dishonesty. It is a gratuitous and more often than not misinformed mixture of ideological moralizing (to be a technodeterminist is, somehow, a politico-moral failing) and supercilious laziness (now that I have determined that X is technodeterminist, I can happily disregard X and go back to sleep). When you hear the T word, remove your gloves.

But back to your point: Historically speaking, technodeterminism is in part a discursive transfer from the realm of economics to that of technology.¹⁶ Especially in the 1920s the arguments aimed at the alleged economic determinism of Marx were redeployed against theories that appear to smack of technocratic engineering, a change of target that both drives and feeds off a flattening of the term *technology*. The logia is dropped, as it were, leaving a very mundane and trivial view of technē as something big and ugly with lots of knobs, levers, and blinking lights.

However, I like your idea that technodeterminism – be it euphoric or apocalyptic – is also an undigested residue of the initial impact with a powerful new technology. What makes your point so pertinent to Kittler in particular is the fact that it is central to the design of *Gramophone, Film, Typewriter*. People tend to overlook that this reputedly arch-technodeterminist manifesto, which begins with the apodictic pronouncement that "[m]edia determine our situation," is heavily invested in literature and the literary construction of media technology. As he states at the outset, Kittler inserts and relays texts from the period of the initial encounter with analog media, when even "obsolete media" like books exhibited a sensitivity

for new technologies “and the terror of their novelty,” which we, having grown accustomed to them, have lost.¹⁷ Of course Kittler quickly adds that these stories cannot replace a history of technology. You are not going to gain a technical, medium-specific understanding of phonography by reading Rilke’s “Primal Sound” and its speculation on what sounds would emerge if you used a phonograph needle to “play” the coronal suture on a human skull. But we sense what is going on underneath Kittler’s procedure. These early literary texts stake out the epistemic and experiential domain of the theory to follow. The flight path Hegel’s owl of Minerva follows at dusk was in part explored and plotted at dawn by Apollo’s and Aphrodite’s twittering sparrows. We need a media theory that in order to break the narcotic spell imposed on us by new media must be commensurate to the sense of fright and wonder we experienced when we first encountered them.

AvdO: Moreover, would you say that Kittler, an active participant in this cycle for some time, chose to push the topic a little by fearlessly and purposefully provoking his opponents as a fierce anti-humanist, a scholar in the humanities who, contrary to most scholars in his field, passionately and polemically wished to focus on *technology*, not humans, when addressing major questions of the humanities regarding communication and representation?

GWY: No doubt about it. There is – especially in Kittler’s media-theoretical writings – not a single important concept that is not also a fighting word. In feisty German: *Kittlers Medientheorie ist eine Theorie der Kampfbegriffe* [Kittler’s media theory is a theory of fighting terms]. And the supreme fighting word is, of course, *media*. It is so difficult to determine what on earth Kittler means when he uses the term because he has it operate in three different registers. First, it denotes a new *object* of study – say, the typewriter. Second, it denotes a new approach to established objects – the study of literature within a Remington discourse network of mechanical text production. Third, it is a kind of constant accusation which refers less to anything Kittler is saying than to everything others are not saying. It polemically highlights what has been overlooked, suppressed, or concealed by “soul,” “subject,” “man,” “spirit” (a.k.a. *Geist*) and all the other nebulous entities at play in the humanities that Kittler loved to preface with his trademark term *sogenannt* (“so-called”). Media occupy the center of the humanist blind spot.

Kittler and Film Studies

AvdO: Would you say that Kittler was a productive thinker also in the field of film studies?

GWY: I doubt it. Isn't the film section the weakest part of *Gramophone, Film, Typewriter*? Kittler himself thought so. *Optical Media* is almost an act of atonement.¹⁸ On a very basic level, Kittler struck me as a man of sound and temporal sequence, not of sight and visual composition. "Hold on," readers will say, "film is every bit as much a temporal sequence as a phonographic recording; it is subject to the same time-axis manipulation that is so central to Kittler's approach to media. Film, too, is an instantiation of machine time." Agreed. But I think it's advisable when tackling the Kittler/film issue to recall Frank Hartmann's diagnosis:¹⁹ There is a moment of almost Kantian distrust of images in Kittler, which may or may not be part of his Lutheran heritage. Some passages in *Optical Media* read like belated contributions to the 17th-century word-based Protestant campaign against the image-based Catholic Counter-Reformation.

AvdO: Kittler as an iconophobiac, that would indeed make sense to me. For one, it would help me to understand why I was so terribly disappointed by Kittler's (online) lecture on "The Relation of Art and Techne," given at the European Graduate School in 2005.²⁰ I already knew the etymological connections between the two words, art/technē, thank you. So could we proceed beyond that, please. But Kittler did not. Not really. Though the connection between arts and technology does still need some serious attention. For one, I take it that the genealogies of art and technology are intertwined in many ways, moreover that it is symptomatic that, historically speaking, debates on the relation amongst poets, artists, and cultural critics (Baudelaire and Benjamin were once among them) recur every few decades, at the very least. These seem to indicate that new technologies – and optical and visual technologies perhaps even more than the others – may affect viewers in all sorts of interesting ways, creating a different perceptual or aesthetic experience which may have a sudden and strong impact on the imagination, particularly of those who are sensitive to the visual, to images. In other words, should we not simply expect the art world to have responded to technological and particularly optical inventions over the centuries? As the avant-garde artists of the 20th century have shown repeatedly, experimenting with all sorts of ways to transform perceptual experiences, if only temporarily, etc. In other words: I had high expectations of the lecture. When I saw it, though, I was really disappointed. It is cliché in part, unintelligent in part, repetitive and... the provocative remark on Warhol makes Kittler suddenly sound like a petit bourgeois on avant-garde paintings that "my kid could do better"...

GWY: ... and there's the swipe at Locke's "incredibly dull essay on *Human Understanding*, the entry of commercialism into philosophy." Trust Kittler – who nonetheless had an anglophile streak – to resurrect the good old continental view of the English as a nation of shopkeepers whose contributions to philosophy amount to glorified bookkeeping...

AvdO: I always thought this was Kittler on an off day.

GWY: Annie, I am afraid there is a fundamental divide between Kittler and yourself that no deliberation on my part is going to mediate. But you are voicing a discontent many have expressed concerning this particular lecture (and related pieces), so it's worth trying to probe what Kittler is saying. Why he is so dismissive of contemporary techno- and media-artistic endeavors? (Yet before we begin: in fairness to him, he is squeezing material covering two thousand years of history into a 50-minute lecture delivered in his third or fourth language. It is no coincidence that he now and then slips into French. *Il parlait beaucoup mieux le français que l'anglais.*)

This is the big cinemascopic narrative: Once upon a time under a bright Aegean sky there was a notation system, the Greek vowel alphabet, which was successively refunctionalized in such a way that it was able to encode linguistic, mathematical, and musical data. This pristine unity fell apart, and the various arts and media formats developed their own notation systems. Speaking dialectically, it is precisely this differentiation that allowed for their progressive mathematization and technologization. At one point, and it first occurred inside Alan Turing's cranium, the ability to unite the various media formats was regained by means of digital computation. Step 1: Unity. Step 2: Differentiation with attendant specialization. Step 3: Unity on a higher level. *E unibus pluram, e pluribus unum.* For all his disavowal of Hegelian teleology, Kittler is telling a story that comes with strong Hegelian residues.

Now, it is this story that provides the algorithm for the distribution of praise and disdain. Worthy of praise are those artists who – like Brunelleschi, Alberti, or Vermeer in the realm of painting – are at the top of their game because they push the mathematization and geometrization of their art. Worthy of praise are those who – like Wagner and his projected *Gesamtkunstwerk* – push the reintegration of media formats. And worthy of praise are those who – like Pink Floyd in “Brain Damage” – use the art form or media format they work in to stage and reveal its current technological underpinning. Given this basis for evaluation, Warhol does not qualify for any praise, on the contrary. From Kittler's point of view, Warhol is adopting a fancy artistic pose by simply sponging off a medial effect with little understanding of its technological conditions. He is doing very little with a lot of attitude. Nowadays any PC can do the same with far less fuss. And computers – to return to the question of images – do not operate on the level of images, they merely use them to stoop to inferior human operating levels.

AvdO: Indeed, though, you make me wonder all over again whether visual art in fact was not a thing he understood, he could experience, could take in? Is there a deeper lack of concern with visual art? Perhaps with optical technologies? And also with film, with the cinema?

GWY: It's difficult to diagnose. My suspicion is that on top of the admitted inability to discuss images on the same level as acoustic phenomena, there are two other points. First, remember that Kittler did not invent German media studies. He was not the first to seriously scrutinize non-literary media in an academic setting. *Kommunikationswissenschaften* (communication studies), once known as *Zeitungswissenschaften* (newspaper studies), had been around a long time. And *Filmwissenschaften* (film studies) were already on the go when Kittler headed into media. Indeed, there have been recent attempts to show that German media studies started in and with film studies. Forget Kittler, forget the Frankfurt School, forget communication studies, the real point of origin is said to have been the arrival of the video recorder. Kittler, however, saw the bulk of film studies as nothing but literary studies applied to film. Sure, you could read Christian Metz et al., add a layer of structuralist sophistication and rhapsodize about alternating syntagmata, but for the main part films were treated as texts on celluloid. The accessibility of the image invited elaboration of the content at the expense of more medium-specific issues. This apparent hermeneutical appropriation, I believe, biased his perception of the medium itself. Whether that is a fair assessment of the film studies he encountered is a very different question. Kittler was prone to pontificate in rather one-sided ways on disciplines he disliked. Think of his parochial dismissal of US-style cultural studies.

Second point: Lacan. As you know, Kittler related film to Lacan's imaginary. But the imaginary is a Lacanian register Kittler does not take kindly to. It is no coincidence that he sometimes treats film as the technical implementation of text-based reveries cooked up in the "Discourse Network 1800" – which we cannot simply surrender to.²¹ To put it bluntly, in terms of Lacan's tripartite division Kittler's media theory aims to send the imaginary out to pasture in order to secure an undisturbed fruitful intercourse between the real and the symbolic. This bias results in – I hesitate to call it laziness – but a certain reluctance to move beyond the Lacanian playground when dealing with film, that is, the imaginary. He is much better when discussing the real (phonography) and the symbolic (typewriter).

AvdO: Kittler's ideas of film studies and Metz's theorizing in particular were already so outrageous and outdated when he presented them back in the 1990s that it would be unproductive and irrelevant indeed to respond to them in 2013; instead, let me address some remarks on Kittler's perception of film. You label film studies as one of the disciplines Kittler disliked. That obviously would be in line with his assumed lack of affinity with images and the imaginary. Interestingly, connecting the two was exactly what Metz tried to do in *Le Signifiant imaginaire* [The Imaginary Signifier].²² Coming from phenomenology and structuralist linguistics and having already explored the productivity of studying film in terms of a language, a grammar, and a time-based art driven by narration in "La grande

syntagmatique du film narratif” and other works, he then went on to explore how the considerable impact of film images on the viewer’s imagination could best be understood.²³ In his apparatus theory, Metz basically explored the productivity of framing the problem in terms of an apparatus (*l’appareil de base*), which could produce and project film images that, under circumstances specific for the cinema dispositif (and while concealing the apparatus, which was needed to create these effects), were able to affect and often even captivate the viewer’s imagination for the duration of a movie. In other words, Metz addressed some fundamental questions triggered by the medium as he had come to understand it, as an “apparatus,” and at the same time he explored the productivity of a new theory of the imaginary for the field of film studies. Now let us say neither images nor the imaginary were Kittler’s cup of tea. He was not interested in these aspects of the film medium (or in a dialogue with Metz). Obviously, this was bound to affect his relevance for film studies in the long run. Perhaps we should go even further and say that it affected his relevance for media studies overall, as images and the visual and their impact on viewers form such a substantial part of media history, of media’s impact on culture, certainly in the 20th and the 21st centuries. Do you agree?

GWY: I do. But he wouldn’t. And the reason is related to a feature of the image we have not yet addressed. Kittler’s reluctance to fully engage images and their cultural impact is not only a matter of personal proclivity. It is not only a residue of Lutheran or Kantian *sola scriptura*. Neither is it only a matter of discontent over content-based film studies. It also has to do with the technical fact that in many ways the image, which in your description comes across as an ontological entity, is a surface and/or interface phenomenon. Computers do not communicate images to each other but their digital encoding. In contrast to numbers, images are, as it were, a kiddie language, a primitive vernacular adopted by computers when they stoop to our operating levels. Kittler was so taken by the Dürers, Albertis and Brunelleschis because their grids, veils, and diagrams were earlier ways of generating images from projective geometry or other mathematically oriented cultural techniques. Mediated images are numbers in their Sunday best – impressive, representative, seductive – but they do not reside on the operating levels that media theory has to access.

This directly affects your question whether Kittler’s relevance as a media theorist is hampered by the fact that he did not adequately address images and their visual and their impact on people and culture. Your question is based on the premise that such impact studies are central to media theory, but that is not how Kittler saw *Medienwissenschaften*. Regardless of the fact Kittler provided some ingenious insights on how media inscribe people, he would insist that media theory’s principal concern is the historically informed study of the ways in which changing media structures or discourse networks store, process, and transmit

data. On a bad day in the early 1990s he would have added: Let sociologists worry about human impact.

AvdO: When we go back to his 1999 Berlin lectures on optical media, we see that Kittler typically approached cinema as a time-based medium.²⁴ One of his central questions was the impact of film on “the ancient monopoly of writing” and the new ways in which authors (and certainly writers of fiction) were forced to compete with film and cinema, which were to alter the status of books. Kittler was interested in these “media wars.” He was interested in the analysis of power relations. In many ways, Foucault was his model, as you already explained. Like Foucault, he was discourse-oriented. Moreover, he successfully inspired a focus on the materiality of media. He helped to lay bare the epistemological structures underpinning studies in the humanities. He helped to open up the field for media studies. How exactly do you assess Kittler’s attention for the materiality of the medium with regard to this? I mean to say, the aura of the traditional discipline of archaeology in many ways rests upon the aura of the objects, that is to say, direct empirical contact with all these curious material leftovers of past centuries. Contrary to fieldwork in archaeology as a traditional discipline, which takes a lot of long hours of sweating under the Mediterranean sun on one’s knees, Kittler seemed to shy away from field work for months on end, from empirical contact with the objects, perceptual experiments, hands-on research. Nor did he often resort to sharing his knowledge in a dialogue with, say, the Philips or Blaupunkt engineers, who did perceptual experiments with optical devices for five decades. You used the words *reluctant* if not *lazy*... A preference perhaps to fool around in the discursive playgrounds he already knew? Trained as a philologist, he was a man of books, he was effective with words. They did the job. In retrospect, we may conclude that he successfully helped to construct media studies in the humanities. This has changed the field. That critical project as such, as a discursive enterprise, productive as it was, has come to an end. And now? Must we not leave that playground and move on? Include the material objects, as archaeologists do, to construct hypotheses, test theories, substantiate claims. Talk to engineers. Study their experiments. Study the historical leftovers of the *l’appareil de base* in the archive. Endure long hours under the hot sun?

GWY: But in fairness to Kittler, isn’t that like taking the speed of supersonic jet planes as the norm for air travel and then dismissing old propeller biplanes for not being fast enough? They were a heck of a lot faster than the hot-air balloons they replaced. Go back to the 1980s and early 1990s, when institutionalized media theory was in its infancy. How many “media theorists” apart from him studied synthesizers, assembled their own switchboards, made an effort to master mathematical information theory, and learned and even taught basic computer programming? No doubt the engineering sections and software experts within

today's media studies (and the fact that they are now *within* this discipline is part of the Kittler effect) can easily expose Kittler's gaffes and reveal his textualist bias, but in his day he was ahead of the curve. He had earned the right to ridicule academics who pontificated about media technology but could not explain the difference between a vacuum tube and a microprocessor – and boy, did he make use of that right.

The irony is that what you recommend for the future of media studies (sensibly, I think) is what others perceive to be one of the most lamentable aspects of Kittler's impact: the tendency to indulge in mind-numbingly tedious artifactualism, in which (let's run alliterative amok) the analysis of algorithms, the diagnosis of diagrams, the exegesis of electronics, the probing of programs, the scrutiny of switchboards, is seen in itself as an inspired act of real media-theoretical critique with God knows what kinds of ramifications. I think he sensed the danger of the increasingly self-enclosed tech-focused sterility he had helped create. The whole late-career shift to love, the Greeks and the protean glory of the multi-functional vowel alphabet, the attempt to show by close reading of the gospels that Jesus was crucified because he was the Linus Torvalds of his age, the philological meticulousness employed to reveal Saint Paul as the Great Apostle of Pneumatic Vowels, not to mention the close reading of the *Odyssey's* Siren song as a Homeric discourse on discourse channel conditions – isn't all this also a return to a textual critique designed to counterbalance some of the effects of his earlier work? Kittler's oeuvre, like Foucault's, is continuous by reacting against itself.

Kittler, McLuhan, and Estrangement

AvdO: Would you consider Kittler a pupil of McLuhan, and if so, possibly his brightest one, as Thomas Elsaesser once said in a 2011 conference in Montréal hosted by André Gaudreault and Martin Lefebvre?

GWY: I have difficulties with the label “pupil” if it implies the dependence, continuation, and/or indebtedness that constitute pupil/teacher relationships, even if they never shared a room. Derrick de Kerkhove is a pupil of McLuhan's, Kittler is not.

AvdO: To provide a bit more of a context to you: Thomas Elsaesser and I were in fact talking about the branches which sprang from the McLuhan school, and Canada of course saw quite a bit of offsprings and followers... And not only Canada. It was within this context that he suggested that the much later work on remediation by Bolter and Grusin springs from that same Canadian tree – but that Kittler was the more brilliant (or most brilliant) scholar to pick up on McLu-

han's work. Who would not agree? If one only allows an evocative and productive thinker as McLuhan to also present some mistakes and underdeveloped thoughts, one must still value his work and acknowledge the revolutionary and evocative force of his thinking, the productivity and relevance of his insights. The pivotal question is not: What smaller mistakes did he make? or Where is his thinking underdeveloped? But rather: Where did he really miss the point? And the same goes for Kittler of course.

GWY: Indebtedness to McLuhan – Kittler's or anyone else's – is a tough topic. It requires that we identify what McLuhan said, which is not an easy task. It also requires that we move beyond the bipolar mood swings that have dictated our evaluation of McLuhan. Historically, McLuhan's ideas were like a highly fertile layer of manure spread across a wide array of approaches and disciplines. We did not like the smell, we did not care for many of the ingredients, so we were happy to forget the fertilizer when harvesting and eating the products. But after decades of disdain some are now approaching the other extreme by turning McLuhan into the fountainhead of all modern media theory. Yet McLuhan himself was a bustling relay station drawing on many sources. The bigger the pedestal we put him on, the more it obscures the view of those behind him, including Innis.

But let's lay the groundwork for Kittler/McLuhan. The main and obvious similarity is the programmatic rejection of message in favor of medium. When Kittler analyzes Pink Floyd's "Brain Damage" as a "discourse on discourse channel conditions," he is saying that the message of the song is its own medium. It's McLuhan's mantra with a Franco-German accent; and both are riffing off the basic information-theoretical tenet that organization is information.

The main dividing line, frequently drawn by Kittler, is anthropocentrism. For McLuhan (to quote the standard objection which is also the famous subtitle) media are "extensions of man." Of course, if you read McLuhan you quickly discover that he has a keen, quasi-Kittlerian eye for feedback processes in the course of which media work over their human creators, as in the famous case of the driver becoming the servomechanism of his car. But regardless of what hybridizations it may lead to, this prosthetic logic has its point of origin in the human body and nervous system. From Kittler's point of view, McLuhan still subscribes to the anthropocentric delusion that man is the measure of all media, even when the latter reshape the former. This has obvious implications for the ways in which the theories handle the media/senses nexus. McLuhan is interested in how media affect the sense ratios of pre-given senses, Kittler is interested in how media and senses mutually emerge and map each other – you only understand the latter in terms of the former. That is one of the red threads of *Gramophone, Film, Typewriter* and the second part of *Discourse Networks*. In short, McLuhan's media theory has the tendency to inch toward a theory of perception; in

Kittler's case, the question of human perception enters as a contingent by-product of media.

So far, so unproductive. But let's push the envelope. One of the great concerns of the older, Greek Kittler was that "media make sense when media make senses." Translated into a discourse accessible to modern mortals: Under the right circumstances (e.g., *Magna Graecia* in Southern Italy, around 400 BCE), using the right epistemic objects (e.g., a cithara) and the right notation system (the Greek vowel alphabet simultaneously acting as a numerical and thus musical notation system), and performed in the right spirit of love, music and numbers, interacting with these media and multifunctional sign systems will allow us to enter a domain – rephrased in Black Forest lingo: will grant a truth event, an unconcealing of being – that we have been missing out on ever since prudish, tone-deaf, and mathematically ignorant Athenian philosophers started to clutter our unfortunate minds with lumbering ontological distinctions like form and matter, soul and body, glowing ideas up there and base things down here. Is there not a basic similarity to McLuhan in the sense that media theory is to break the narcotic spell of mindlessly accepted media environments to open up a richer experiential domain? You're the expert, so I submit to you: Isn't McLuhan's media-theoretical update of the Formalists' *ostranenie* a bit like Kittler's take on Heidegger's *aletheia*?

AvdO: This is a very interesting connection indeed. The point which many media scholars missed in the post-war era is that perception – as in McLuhan's and Kittler's media theories – was also a key issue for the so-called Russian Formalists, who, ironically, were wrongly labeled since "form" was not their concern.

GWY: If I recall matters correctly, we have Trotsky to thank for the label "formalism," which is as misleading as "technodeterminism." Maybe "perceptualism," though equally ugly a term, would have been better.

AvdO: The Russian Perceptualists – that label would indeed have been spot on for the Shklovsky circle. They focused on "ostranenie" (making strange): that interesting phenomenon that foregrounds new techniques (in art, in Shklovsky's case) that turn the normal into the strange; percipient viewers/hearers keenly and readily take in the "strange" in a perceptual process which is notably slowed down, complicated and deepened, as Viktor Shklovsky explained in "Art as Technique."²⁵ He did not use the words technology or medium since he was inspired by the poetry performances his friend, the poet Vladimir Mayakovsky, provided in the early 1910s. Interestingly, Mayakovsky's model was the new cinema machine, which, as he had been quick to notice, created strong effects in viewers by making everything look strange. Strange and evocative, just as Mayakovsky's own "Futurist" performances would soon become: this tall poet recited with a radish

in his buttonhole, making strange gestures and using lyrical as well as silly words and nonsense; thus, he typically created an “art experience,” as Shklovsky already explained in 1913. Similarly, new media technologies are able to de-automatize the perceptual process and create a prolonged (art) experience of things “as they are perceived and not as they are known.”²⁶ Automatization and de-automatization of perception, conceptualized by Shklovsky in terms of the art experience, obviously provide a basis for a media theory that helps to explain (media) sensitization and desensitization, moreover, why media effects first are strong, then disappear. Why is all this interesting material for media scholars? Because it helps to understand how we relate to old media. Being desensitized to them means that the initial sensitivity to the medium’s technological makeup vanishes as the strangeness effects wear off due to automatization (or *algebraization*, as Shklovsky also called it). This inevitably leads to a decrease of sensitivity to the distorting powers of these once new techniques to the degree that viewers become almost fully insensitive to them. It automatically leads to a point where the presence of techniques in the perceptual process is not noted anymore: a swift shift from medium to mediated may become not only habitual, but even natural or “second nature.” Just note how we relate to television. Interestingly, this also suggests that the twin mechanisms of de-automatization and automatization help to constitute the fields of art and media respectively, and that the two are inherently connected. Art is made for, and experienced by the senses, whereas media are simply there to be used. A medium is a means that functions only when it steps back, as media phenomenologists keep repeating.²⁷ Nevertheless, it is a fundamental problem for media studies that media technologies are easily overlooked. In other words, that automatization renders them transparent, thus facilitates a dominant research focus on the “real,” not on the medium. That is the realist fallacy in research: desensitized to its effects, realists basically leave the medium understudied. Overlooking the medium is a recurring phenomenon in the humanities. McLuhan always had my sympathy for the very reason that he put perception and the materiality of the medium back on the research agenda after WWII in evocative and provocative ways. As Kittler did some decades after him. There is something cyclical to it, don’t you agree? Shklovsky, McLuhan, and Kittler provided (media) theories in the three major new eras that marked the 20th century: film, television, and computers. Their theories forced a focus on the materiality of the medium. All three had to provoke their readers. They had to break (as you wrote) the narcotic spell of the mindlessly accepted (old) media environments they found themselves in. And each of them indeed had a keen interest in the richer experiential domains created by new media technologies and art. But they are relevant for the field in different ways. There are things their theories can, and cannot do. If you had to indicate to your students how these (media) theories can best be made productive, including some clear instructions and warnings and an implementation schedule, as a pharmacist would on a med-

icine label, what would you write on Kittler's label? (I am not so sure you would want to write the McLuhan label...)

GWY: A label? Like on a medical ointment? How about: "Handle with care. Do not only apply to sore spots but also to allegedly healthy parts of your body. Warning: This product will not cure you of any disease, only of your mistaken belief in the healing power of other ointments."

But seriously: your remarks on art, media and estrangement – which deserve a discussion of their own – make me think of a book-length interview from 1996 that was republished on the occasion of Kittler's death.²⁸ Kittler (we touched upon this in connection with Warhol) was not too fond of discussing video and computer art – a reticence that some of his critics in the academic art scene will neither forget nor forgive. My sense is that he viewed these discussions, if not the art objects themselves, as attempts to recycle under a souped-up technological veneer bygone notions of artistic subjectivity and romantic creativity. But in this particular interview he is pretty talkative. As if to illustrate your point – that is, the refunctionalization of a media technology in order to arrive at new, unexpected, "rejuvenating" performances that let us re-experience hitherto somnambulantly accepted media environments – the interviewer mentions scratching. In violation of established technological and artistic presets and standards, turntablist scratching is an abuse, an estrangement of analog recording technologies for the purpose of generating new sonic experiences. Kittler responds by pointing out that the corresponding phenomenon in his generation was the way in which performers like Jimi Hendrix or Syd Barrett took technology out of the hands of the technicians and corporate employees and started to fiddle with amplifiers, controllers, feedback circuits, and so on, and then made this technoexplorative experimentation an integral part of their music. We all know the Kittlerian mantra that rock music is an abuse of army equipment. This would be a case of double estrangement, the mind-altering abuse of an abuse.

But then he moves on to the computer, and things change. Indeed, how do you estrange a universal machine? What new stuff can you do with a machine defined by its ability to simulate and replace all the old ones? Ridiculing some of the more rambunctious instances of computer art, Kittler says that of course you can throw a computer out of the window and hope for a pretty result. But what comes of that? Kittler: "Nothing comes of that, that's simply destruction. Ultimately, it will come down to programming, in the course of which you automatically operate on the level on which the apparatus is constructed."²⁹ In ways which undermine the liberating, distancing gesture we associate with estrangement, beneficial abuse is already programmed into that which is to be abused. The divide between analog and digital, then, is expressed in terms of differing estrangability (in Brechtian German, *Verfremdbarkeit*). Or, to phrase this the other way round: the potential for estrangement, the very possibility of *ostranenie*, is

radically altered by changing technological environments. In the digital world – and it is imperative to hear the political undertones of this argument – resistance is futile if it is located outside of the machine. In ways that come close to ideas Flusser developed in *Towards a Philosophy of Photography*, resistance involves working *inside* the machine *with* the machine *against* the machine.³⁰ “With numbers,” Kittler wrote, “everything goes.”³¹ And that, I guess, includes their own estrangement.

- of *Science, Technology & Society* 32 [Special issue on video games] (December 2012): 489-496.
18. The work was commissioned to accompany the book project *Else/Where: Mapping New Cartographies of Networks and Territories*, ed. Janet Abrams and Peter Hall (Minneapolis: University of Minnesota Design Institute, 2006). In the collection, the artist writes about the experience of making the work in "Can't Be Elsewhere When GPS Drawing," (274-275).
 19. Tim Ingold, "Against Space: Place, Movement, Knowledge," in *Being Alive: Essays on Movement, Knowledge and Description* (London & New York: Routledge, 2011), 148.

Rethinking the Materiality of Technical Media: Friedrich Kittler, *Enfant Terrible* with a Rejuvenating Effect on Parental Discipline – A Dialogue

1. Recently, he edited the special issue on cultural techniques for *Theory, Culture & Society* (with Ilinca Iurascu and Jussi Parikka), and translated an essay collection by Bernhard Siegert. See also: Geoffrey Winthrop-Young, "Hunting a Whale of a State: Kittler and his Terrorists," *Cultural Politics* 8, no. 3 (2012): 399-412.
2. As to the field of film studies more specifically: some recent publications provide introductions, overviews and analyses of the impact of media archaeology and Kittler's work on the fields of film studies, curating and archival practices, media art, etc. See for example, *Media Archaeology: Approaches, Applications, and Implications*, ed. Erkki Huhtamo and Jussi Parikka (Berkeley: University of California Press, 2012), and Wanda Strauven, "Media Archaeology: Where Film History, Media Art, and New Media (Can) Meet," in *Preserving and Exhibiting Media Art: Challenges and Perspectives*, ed. Julia Noordegraaf et al. (Amsterdam: Amsterdam University Press, 2013), 59-80.
3. Geoffrey Winthrop-Young, *Kittler and the Media* (Cambridge: Polity, 2011), 2.
4. For a more extensive personal account see Geoffrey Winthrop-Young, "'Well, What Socks Is Pynchon Wearing Today?' A Freiburg Scrapbook in Memory of Friedrich Kittler," *Cultural Politics* 8, no. 3 (2012): 361-373.
5. Further see Geoffrey Winthrop-Young, "Krautrock, Heidegger, Bogeyman: Kittler in the Anglosphere," *Thesis Eleven* 107, no. 1 (2011): 6-20.
6. Friedrich Kittler, *Discourse Networks 1800/1900*, trans. Michael Metteer and Chris Cullens, intr. David Wellbery (Stanford: Stanford University Press, 1990), 125.
7. Winthrop-Young, *Kittler and the Media*, 59 [my italics].
8. *Ibid.*, 58.
9. See Friedrich Kittler, "Ein Verwaiser," in *Anschlüsse: Versuche nach Michel Foucault*, ed. Gesa Dane et al. (Tübingen: Diskord, 1986), 141.
10. Michel Foucault, *The Order of Things: Archaeology of the Human Sciences* [1966] (London: Routledge, 2001).
11. E.g., Friedrich Kittler, "Heidegger und die Medien- und Technikgeschichte," in *Heidegger-Handbuch*, ed. D. Thomä (Stuttgart: Metzler, 2003), 500-504; and Kittler, "Zum Geleit," in *Der Foucault-Reader: Diskurs und Medien*, ed. J. Engelmann (Stuttgart: Deutsche Verlags-Anstalt, 1999), 7-9.

12. Friedrich Kittler, *Gramophone, Film, Typewriter*, trans. and intr. Geoffrey Winthrop-Young and Michael Wutz (Stanford: Stanford University Press, 1999), 4.
13. Winthrop-Young, *Kittler and the Media*, 59.
14. Arnheim quoted in Kittler, *Gramophone, Film, Typewriter*, 11-12.
15. Winthrop-Young, *Kittler and the Media*, 60.
16. Further see Eric Schatzberg, "Technik Comes to America: Changing Meanings of Technology before 1930," *Technology and Culture* 47, no. 3 (2006): 486-512.
17. Kittler, *Gramophone, Film, Typewriter*, xl.
18. Friedrich Kittler, *Optical Media*, trans. Anthony Enns (Cambridge: Polity, 2009).
19. See Frank Hartmann, "Vom Sündenfall der Software. Medientheorie mit Entlarvungsgestus: Friedrich Kittler," available at <http://www.heise.de/tp/artikel/6/6345/1.html>.
20. See the lecture online at <http://www.egs.edu/faculty/friedrich-kittler/videos/the-relation-of-art-and-techne/>.
21. Kittler, *Discourse Networks 1800/1900*.
22. See the dialogue on Christian Metz and apparatus theory in this book. Christian Metz, *The Imaginary Signifier: Psychoanalysis and the Cinema* (Bloomington: Indiana University Press, 1977).
23. Christian Metz, "La grande syntagmatique du film narratif," in *Essais sur la signification au cinéma*, vol. 1 (Paris: Klincksieck, 1968).
24. These lectures are assembled and translated [by Anthony Enns] under the title *Optical Media*.
25. Viktor Shklovsky, "Art as Technique," in *Russian Formalist Criticism: Four Essays [1917]*, trans. Lee T. Lemon and Marion J. Reis (Lincoln & London: University of Nebraska Press, 1965), 3-57.
26. Shklovsky, "Art as Technique," 12.
27. See Lambert Wiesing, "What Are Media?" in this book.
28. Friedrich Kittler, *Platz der Luftbrücke. Ein Gespräch mit Stefan Banz* (Nürnberg: Verlag für moderne Kunst, 2011). For the following see pp. 41-46.
29. Kittler, *Platz der Luftbrücke*, 44.
30. On this point further see Kittler, *Gramophone, Film, Typewriter*, 108; Geoffrey Winthrop-Young, "Drill and Distraction in the Yellow Submarine: The Dominance of War in Friedrich Kittler's Media Theory," *Critical Inquiry* 28, no. 4 (2002): 825-854; Vilém Flusser, *Towards a Philosophy of Photography* (London: Reaktion Books, 2000).
31. Kittler, *Gramophone, Film, Typewriter*, 2.

Revisiting Christian Metz's "Apparatus Theory" – A Dialogue

1. Martin Lefebvre and François Albera, eds. "La filmologie de nouveau," *Cinemas: Journal of Film Studies* 19, no. 2-3 (2009).
2. Dominique Chateau and Martin Lefebvre, "Dance and Fetish: Metz' Epistemological Shift," *October* (forthcoming). Parts of this article were presented as a paper in a panel on Christian Metz at the Film Philosophy Conference in London in September 2012.