Television's Many Technologies: Domesticity, Governmentality, Genealogy

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Media are inseparable from technology.[1] Yet each medium – or what is culturally identified as such – provokes new ideas about not just what technology actually is but also about what technology's relevance is for all the different media. Television research, in this context, presents an interesting case. On the one hand, technology in the narrower (or, maybe, banal) sense – the hardware, the electrical principals, and so on – has not been granted much attention.[2] On the other hand, research on television actually does offer interesting provocations to existing definitions of technology in film and media studies. This is especially obvious with respect to television's latest transformations, which undermine any clear technical definition of the medium since they comprise both program schedules and individual access through DVD or streaming outlets, as well as both traditional, living-room TV sets and mobile phone applications. To focus on only these developments, however, would simply lead to affirming a banal idea of technology's influence: technological innovations change and challenge the identity of the medium. In contrast, I want to start by focusing on the seemingly more simple television landscape between the 1960s and 1990s, and on "classic" television research. Television research's most relevant contribution to the question of technology in media development, I want to argue, is mainly due to television's domestic character. The day-to-day use of highly complex machinery in ever changing connection with other domestic technologies poses quite different questions than the more public use of technology in cinema and the mobile always-connectedness of digital media. What is at stake here is the intricate relationship between technology as technical system, as material object, as social practice, and as techniques of the body.

   In the first part of this chapter, I will show how television research's focus on the medium's domestic setting (supported by television research's excessive opposition to technological determinism) in the 1970s and 1980s helped develop a complex and extended, yet often implicit concept of technology; this is also visible in television research's take on the digital in the 1990s, which is very different

from the film and new media studies debates of the issue. In the second part, I want to suggest certain conceptual tools – dispositif, technologies of governing, genealogy – to give these often under-theorized and under-debated insights a clearer shape (which also somewhat allays the conceptually limiting fear of technological determinism).

Three main insights will be at the core of my argumentation: 1) television urges us to think of media as unstable constellations of technologies including practices and discourses that are no less technological than hardware and software; 2) this technological constellation is characterized by constant transformation, connecting a medium to cultural struggles and strategies of (self-)governing; 3) taking these inspirations from ("traditional") television/television research seriously brings up questions and concepts that are helpful in analyzing the complexities and transformations of current (post-television) media culture.

Who's Afraid of Technological Determinism?

The makers and cultural commentators of early television were eagerly looking for its well-defined specificities that would offer criteria to adapt or translate older media and their forms to the requirements, the potential, and what today is called the affordances of the new medium. More often than not, they looked at the realm of technological features – transmission, liveness, image size – to find solid guidelines for their still developing practices. In this way, debates on television repeated a characteristic gesture familiar from early uses of other technologies and, more generally, artistic practices: the exploration of a new medium's technological characteristic and potential is supposed to deliver inklings of the forms most appropriate to the medium; it should make clear the difference from older media and showcase the full potential (and possibly dangers) of the new one. In a somewhat circular process, the forms developed with respect to these definitions might point out, even invent, new aspects of the medium never thought of before.[3]

However, each definition of the medium's core features is at the very least only a selective "reading" of it, if not an authoritarian one guided by (more or less veiled) commercial and political agendas. Only recently Evgeny Morozov poignantly criticized the widespread idea that "the Internet" – with reference to its technical features – possesses an "inherent nature, a logic, a teleology,"[4] which then is used to naturalize (or as one should say to *technologize*) evolving new concepts of the social, of privacy, of copyright, and the like.

In television research it was mainly Marshall McLuhan's groundbreaking *Understanding Media: The Extensions of Man*[5] that was criticized for such a determinist view of technology. It was this book which most explicitly brought forward the argument that media transform experience and perception in a fundamental manner and that therefore an investigation of media's technological characteris-

tics is of major importance to understanding their social impact. While McLuhan's arguments were shaped by his involvement in researching the educational use of television,[6] his book only became a household name in television research because of repetitive refusal.[7]

First in Raymond Williams's *Television: Technology and Cultural Form* (1974)[8] and subsequently in dozens of introductory books (and surely endless university courses), McLuhan has been accused of technological determinism and of ideological abstraction or formalism.[9] However, the accusation is not entirely appropriate. McLuhan, on the one hand, is quite explicit about media/technologies having a completely different impact on different environments (radio, for example, had very different consequences in Europe than in North America). On the other hand, his work is characterized by a complex and ambivalent notion of media (which in his definition includes traffic and spectacles, light and electricity), as he closely connects their historical development to the human senses and their (im)balance. The accusation of technological determinism insinuates that he reduces all media (and their impact) to technical, material hardware – which he does not.

Maybe even more problematic is the fact that the reproach of technological determinism – according to John Durham Peters – "blocks the path of inquiry."[10] While Morozov's above quoted warning has to be taken seriously, the often knee-jerk opposition to technical arguments is in denial of the always already technical being of humans and society: the fact, for instance, that the techniques of the body and cognitive processes developed in close interrelation with material technologies. Too often in media studies, the human or social *appropriation* of technologies is simply opposed to the technical characteristics of a medium.

The constraining effect of the stereotypical opposition between the "technodeterminist" McLuhan and Williams as the preferred alternative is that there is actually almost no theoretical debate on television's technological characteristics. This blind spot is amplified by the fact that the more technologically oriented fields of media studies – including so-called German media theory – did not show much interest in television. The fifteen pages on television in Friedrich Kittler's *Optical Media* open fewer new perspectives on the cultural impact (or the "technical a priori") of the medium than his texts on the phonograph, film, or the computer.[11]

The surprisingly productive aspect of this prevalent fear of technodeterminism in television research lies in its sometimes explicit but more often implicit reconceptualizations of the relationship between media and technologies – on which I will focus in the first part of this chapter. Williams's already mentioned *Television: Technology and Cultural Form* is surely the most important reference point for this endeavor. In criticizing both technological determinism and what he calls "symptomatic" explanations of technological change, he suggests introducing the idea of "intention" into the analysis of technology. This term, in its basic

sociological understanding, is intended to help see how some of the multiple aspects of a technology are realized because some institutions (e.g., the military) not only have more power but also much more clearly formulated objectives for a technological trajectory than broader civilian technology uses.

Looking through this lens of intention also means that a medium becomes successful – and becomes an institutionally specific technology – because it is involved in broader cultural tensions. The mass medium of television, according to Williams, bridges the gap between increasing mobility and exchange on the one hand and a heightened relevance of the familial private sphere on the other; television thus contributes to what he calls the "mobile privatization" of capitalist culture. Here at least, we can also see a similarity between Williams and McLuhan, who can both be claimed as precursors of more recent ecological approaches to media in that they consider "not only the 'content' but the medium and the cultural matrix within which the particular medium operates."[12] One of the most decisive aspects of television's "ecology," though, is its domestic character, which raises more general questions about the consequences of the domestication of technologies and the interrelation between media technologies and other technologies involved in daily life.

Mobile Privatization and Domestic Technologies

Even early and highly critical approaches to television realized that the technological characteristic of television is very much shaped by the medium's domestic setting. Already in 1953, Theodor W. Adorno tackled television's cultural impact with reference to the size and quality of the image – characteristics which are also of major importance to McLuhan, who goes so far as to say that with improved image quality it just would no longer be television.[13] He could make this statement because McLuhan did not deal with the domestic setting as a decisive factor of the medium. The size of the image or "the physical dimensions of television programs," Adorno insists, "cannot be isolated from the specific context of television, that of home viewing."[14]

The domestic is not just the setting, in which television takes place, rather it has to be conceived of as a particular field of intense intersections of different technologies. From at least the 1970s onwards, what was at stake in television research, was "the need to recognize how 'television' and 'the home' have gradually redefined one another."[15] The domestic modulates both the mediation characteristic to television – its broadcasting mode, the spatially indifferent one-way communication from a center to an anonymous audience – and the character of its mediated "content."

Williams's concept of "mobile privatization" but also his famous notion of program as "flow" highlight not only the fact that television's technology is adapted, "domesticated" into a complex and dynamic setting which modulates

and multiplies the possible effects of television, but also that the technology itself is only constituted in this process. Television consists of many different technological devices, and it is in the process of domestication that these devices are interconnected with other technologies (telephone, refrigerator, and so on) and practices, all of which, as Roger Silverstone made clear,

> provide the basis for a domestic socio-technical system, systematic not necessarily in terms of the formal and technical links between machines, but in terms of the social relations that construct them and define their significance and patterns of use.[16]

The concept of mobile privatization highlights the fact that television, more than any other preceding media, mediates between the public and the private, the national and the familial; it is inextricably defined by spatial dynamics that are not entirely defined by television itself. Broadcasting, while being a quite specific technical characteristic of television (at least before the introduction of video and pay-cable) is a too abstract notion to exclusively understand the space-structuring effects of the medium.

In most Western countries, television acquired its dominant shape from broadcasting and the process of domestication and (sub-)urbanization in a nation-state. Political regulation, economic interests, and cultural frameworks all equip television's entire technological infrastructure and the products that are transmitted with a national bias. Television reaches the people of a nation-state, its program schedule synchronizes the daily patterns of life, and its news programs and spectacular events implicitly or explicitly address audiences as citizens of a nation-state (notwithstanding also addressing them as consumers – for mostly nationally available products).

Williams's concept of flow on the other hand is very explicitly not only a characteristic of the textual structure of television, but also a "characteristic experience" that results from the medium's technological adaptation to the domestic sphere: it can be switched off and on by the individual user – and as soon as it is switched on ("at the flick of a switch" as Williams puts it[17]), something is already going on. "This phenomenon, of planned flow, is then perhaps the defining characteristic of broadcasting, simultaneously as a technology and as a cultural form."[18]

Stating that flow is a defining characteristic of television's *technology* implies that it indeed might be a feature of television that shapes its cultural function independent of (or perhaps even more than) the selection and distribution of "content" across the day-to-day programming (Williams, just as many others, found it striking that people often do not talk about watching a particular program but about "watching television" instead[19]). Furthermore, flow can also be conceived of as a technology in itself, as it is strategically used as an instrument

to intervene into the practices of the audience. Broadcasters dispose of a set of techniques to ensure program flow: continuity announcers, teasers and many more aim at "the grabbing of attention in the early moments; the reiterated promise of exciting things to come, if we stay."[20]

Questioning the relevance of some seemingly basic technical characteristics of a medium, therefore, does not necessarily lead to an ignorant stance toward technology. Rather it forces to ask, how and in which contexts do practices and materialities get a technological shape: How do they become procedures with the capability to structure behavior and with the promise of constant improvement (and the threat of malfunction)?

Domestic Practices and Technologies of Gender

Television became a technology through its strategic, interventionist application in the domestic sphere. On the one hand, television is both in its historical establishment and daily use deeply related to other domestic technologies – here in the sense of machines or gadgets such as the refrigerator or washing machine. It also has become "a key technology for the selling of other technologies."[21] On the other hand (and partly because of that connection), television has become an object of (and is connected with) domestic technologies in the broader sense of structured practices, craftsmanship, and automatized strategies: a great deal of research has shown how television became a tool of intervening in familial relationships – the nearly stereotypical examples being mothers watching sports programs just to spend time with her son or husband, or fathers switching on the TV to avoid the necessity of talking.[22]

Even the basic feature of flow gets its technological efficiency from daily practices and thus becomes a different technology in different domestic settings or for different people within this setting. Tania Modleski has shown how the flow of daytime programs (soaps and commercials) "connects to the work of women in the home"[23] and in fact contributes to and modulates the fragmented and distracted mode of working characteristic of household duties. In the same way as Teresa De Lauretis used the term *technologies* to describe many different sets of social relations that contribute to the differentiation of gender throughout all practices of society,[24] television could be conceived of as being technological not because of (or with reference toward) its hardware, but because of its systematic contribution to the re-organization of (gender) identities and social relations.

Public and private are no natural givens (on which technology has an impact), but a relationship defined by earlier mediation technologies and by the technologies of gender. The difference between public and private is always already a gendered difference, defining unequal distribution of (in)visibility for men and women. Domestic technologies therefore mean something different to men or women while at the same time intervening in the relationship between them.

In television research, the transformation of television's spatial and temporal dynamics through video and satellite was similarly described as an overlapping of the infrastructural scape of these technologies with the other "scapes" (finance, migration and so on)[25] they were connected to. Whatever their technological potential, video did not just become an individualistic medium withdrawn from the public and satellite TV did not create a straightforward global and cultural imperialist form of communication.[26] Rather, they became technologies (and part of television's technological constellation) because they enabled and provoked strategic practices, and because they opened up additional cultural practices (e.g., migration) for intervention and improvement.

The research on "traditional" television – television before the transition to the post-network of the 1990s or the matrix television of the late 2000s[27] – already had to extend the notion of technology to get a grasp on the situated (domestic), dispersed (fridge, car, remote control), and ever-changing (satellite, video) existence of television.

Television became a key example of the "inconspicuous presence of the technical" in everyday life:[28] technology is everywhere, unavoidable, and often not even explicitly identified as technology. This implies that technology, in television research, is at least a twofold and highly ambivalent concept: on the one hand, technology intervenes in everyday life as an abstract and incomprehensible *system*, objectifying and rationalizing practices. On the other hand, domestic technologies also figure as *instruments* that only get their technological shape from the patterned practices *connecting* the different elements and re-organizing the relation between public and private, male and female, work and leisure. The constant transformation so characteristic of television also has to be understood as a result of the interrelation between technical innovations and strategic practices.

Why Digitization Did Not Matter

The ambivalent place and extended notion of technology in television research became especially clear in the (lack of) debate on the digital in the 1990s. In film studies (but also with regard to photography, video art, and other media forms), the upcoming digital technology provoked substantial questioning of the original technology's role in the medium's identity: computer-based, calculated images were considered to be completely different from the photo-chemical and therefore "indexical" image that (notwithstanding animation) defined (the "essence" of) film and photography. Even if one did not opt for an ontological definition of the digital and its difference from the filmic image, the digital at least became the central metaphor in rethinking the multiple technical identities of cinema, even suggesting scholars "to rethink the idea of historical change itself."[29]

In television research, the computer and digital technology, in the 1990s, were occasionally discussed as complete opposites of television that might eventually replace it in the future: we would become users instead of audiences, individual choice would rule over mass consumption, and so on. And surely the digital became productive as a prism that allowed for a closer look at several allegedly characteristic features of television, begging the question: Does the broadcasting mode of television – its powerful combination of centripetal and centrifugal cultural dynamics[30] – depend on its technical setup, or is it a cultural form that will be continued (if in a different manner) under digital conditions?[31]

Nevertheless, the digital (as a question of technology) remained marginal. This can partly be ascribed to technological reasons: the television image's grid of pixels always already did have a certain digital aspect (even if the color and brightness of the distinct pixels were not digitally determined but defined by continuously, analog changes). Furthermore, digital technology was successively introduced both to television production and to domestic television sets long before the switch to digital transmission "completed" the digitization of television.

The aesthetics of the television image (and its addressing of the viewer) had already been changed very fundamentally before this completion and only partly because of the introduction of digital technologies – television industry (at least in the US) pre-mediated its digitization through a bundle of strategies. John Caldwell very comprehensively analyzed how the dominant zero-degree style of most television coverage, starting from the 1980s, was replaced by a broad palette of distinctive looks (or "stylizations" as he prefers to call it) that partly imitated the production values of Hollywood films and partly displayed a videographic "hypermediality."[32]

The televisual image was reinvented as a tool to give programs and networks an identity, to break the continuity of program flows, to attract certain audiences and to become discussed in its visual qualities. This was made possible by different technical innovations, such as non-linear editing, motion control, and digital graphics, yet it was also based on new economic strategies (addressing target audiences), on an exchange of workforce and technology between film and television, and especially on an intensified theorization of the image in the production process. Caldwell explicitly pleads for an interventionist notion of technology, pointing out that political and industrial forces constantly evaluate and regulate the use and the qualities of certain technologies.[33]

Televisual technology though, in this account, comprises a much larger (and more ambivalent) terrain than just the machines used for image production; rather, television's technological impact becomes truly obvious in the strategic aims and effects of the stylization, one example being the "industrial reconfiguration of the audience, in the name of cultural diversification," which "helped spawn the need for cultural- and ethnic-specific styles and looks."[34]

This then also allows putting aspects of the digital beyond the visual quality of the image into perspective which became relevant in the 2000s. The landscape of content distribution and audience practices may have changed through those technological innovations that make television programs accessible on/through quite different machines and gadgets (through telephone cable and a game console, on a mobile screen, and so on), but this transition to the digital is strategically regulated (made possible but also constrained) by techniques of programming and of audience creation that are taken from "traditional" television and gradually adapted to this new landscape:

> Successful multimedia development, therefore, means being able to track, monitor, and predict – or at least respond quickly to – multidirectional user flows and migrations. As a result, digital programmers must develop new units of temporal-user management.[35]

Innovative aesthetics and technologies (gadgets or online tools, for instance) often figure as strategic entities, organizing the connection and combination of different industrial players and the adaptation and reformulation of techniques (in terms of strategies of intervention). What they are capable of doing "technologically" might not be as important as what they achieve as symbols of innovation, progress, and "the next big thing."

There are of course aspects and layers of digital technology that might not sufficiently be taken into account by such an approach: the power of algorithms and protocols, questions of digital methods and big data.[36] Television research, however, clearly shows that each approach of technology that locates the technological in one well-defined principle (the structure of one piece of hardware or the rules that make up a piece of software, for instance) tends to miss the many technologies that make up a medium. Strategies of scheduling and classifications of audiences are no less technological than hardware/software (or the remote control for that matter) – they offer tools for managing a particular field and enable constant and systematic improvement. Each new medium's technological characteristics include (and are partly defined by) these kinds of discursive and practical layers.

Both the production process and the domestic reception of television therefore consist of heterogeneous bundles of gadgets and practices that only in their interrelation become technologies. They become machineries that define a field of intervention, of improvement, and of agency. In the second part of this chapter, I will connect these insights to more established conceptualizations of media technology.

Technological Heterogeneity: Apparatus/Dispositif

For a long time, the focus on the relationship between (ideologically structured) texts and their (sub-culturally, domestically structured) reception dominated discussions in television research. The research's perspective on technology was shaped by this paradigm, countering the much-feared technological determinism by insisting on the varied and socially embedded "actual" adaptation of technology. However, as I hope to have shown, a sensitivity to both the domestic setting of television and to television industry's articulation of the digital provoked an extended notion of technology – a notion which undermines any clear dichotomy between technology on one side and humans/practices on the other. The practices of consumers and producers are technological – not least because they are formed in connection with gadgets, infrastructures, and buttons to push; the gadgets and buttons become technological by their embedding in already technologized contexts and patterned practices.

These insights, however, are somehow buried at the margins of television research due to its ambivalent attitude toward technology and its focus on questions of representation and reception. To more consistently take inspirations from television to the more general debate on technology and to overcome the still looming dichotomy of technology vs. social adaptation, I want to give television studies' often implicit extended concept of technology some more explicit theoretical leverage.

Considering the close relation between practices and gadgets/infrastructures in the above descriptions, one might take advantage of actor-network theory's insight that both society and the technological systems lending durability to society consist of networks that include human and non-human elements (or "actants" as this theory would have it). In short, object relations and social relations are inseparable.[37] These networks are always fragile, as each new actant that enters or leaves the network changes the entire configuration. Television, that is, becomes a different medium when used with a remote control; it also becomes a different medium when it is watched in a post-traditional family setting. However, the relation between the remote control or the post-traditional family and (the other elements of) television is not a given, but something that always will have to be renegotiated or "translated."[38]

The concept I want to focus on, however, is the one of apparatus/dispositif. Much more explicit than actor-network, this deals with questions of power, which have been at the center of the bigger part of television research; furthermore, the concept addresses how constant transformation – so characteristic of television – contributes to its technological aspects.[39]

While there are some approaches which have taken advantage of this concept to understand the technologies of television,[40] any prior use of the term *dispositif* (or rather "apparatus," the often-used English translation for the French term) in

film theory of the 1970s very much confined its applicability to television. The term aimed to explain the ideological effects of the medium film/cinema (and not of single films) by taking into account the entire configuration that allegedly defines the cinema experience: the camera with its unavoidable central perspective, the movie theater immobilizing the spectators in a dark room with the projector in their back, and the distant screen with its dreamlike images edited into a continuous flow of actions and reactions.[41]

While technology, here, is conceived of as a complex constellation, the cinematic dispositif receives its ideological efficiency from the stability of this overall constellation transfixing the human body. In Jean-Louis Baudry's seminal text, Plato's cave is the decisive point of reference;[42] in subsequent media studies research, the panopticon – Bentham's model for a prison as analyzed by Michel Foucault – partly replaced the cave metaphor. Both models highlight an asymmetric visibility and the effects of a materially, architecturally fixed topology – a machinery of power and subjectivity that does not need human intervention to keep on working.

On the one hand, television can productively be contrasted to the cinematic dispositif point by point: it is mostly watched in a lighted room; viewers remain mobile and might be distracted; and the texts of television being much more fragmented, mixing documentary and fictional, or live and recorded images. Such a comparison leads to the conclusion that the experience of television is much less defined by a concentrated gaze than by distracted glancing and therefore also less defined by processes of identification than by empathy or casual judgments.[43]

This comparison also questions the viability of the apparatus/dispositif approach for television research as it highlights the flexibility and heterogeneity of television. The discussion on domestic technologies, however, is eventually much closer to Foucault's definition of the dispositif than the use of the concepts apparatus/dispositif in cinema studies ever was: he describes it as "a thoroughly heterogeneous ensemble consisting of discourses, institutions, architectural forms, regulatory decisions, laws, administrative measures, scientific statements, philosophical, moral and philanthropic propositions – in short, the said as much as the unsaid."[44] A more thorough consideration of this definition of the dispositif could actually have helped overcome some of the binaries structuring the debates on television – especially reception research's fruitless oppositions between textual structures and "actual" use, or between "active" and "passive" reception.

Foucault's deployment concept in his *The History of Sexuality* made clear that not one stable setup (of the confessional box, for example) forms a dispositif but a changing set of tools, institutions and individual self-guidance, which all can be considered "technological" and thus on the same level as machines, infrastructures, and discourses.[45] The dispositif is not identified as one visible or co-

herent entity (contrary to what often comes to mind when we speak of "panopticon" or of "television") but as an ensemble that receives its coherence from the effects it produces. Television might thus be analyzed as being or establishing a dispositif, but it also has to be analyzed as an element of a larger, more abstract dispositif (what Deleuze calls a "diagram") – e.g., mobile privatization.[46] That a dispositif is never perfectly congruent with one medium makes it such an interesting concept for the analysis of media technologies, as it opens up the question of which kinds of technologies are taken up and transformed by the unstable constellation we call television.[47] The concept forces television research to get a better grip on how practices and materialities become technologies in a certain, conjunctural constellation.

These questions did eventually get more explicit in television research when, starting in the late 1990s, Foucault's later work on governmentality was taken up. In this context, finally, a more explicit discussion on technology unfolds.

Television's Constant Transition: Technologies of Governing

With the concept of governmentality, the historical development of technologies of governing is brought into focus. Compared to the notion of the dispositif, both institutional frameworks (especially the actions of a government or a state) and individual practices are much more explicitly taken into account as operational elements of power technologies. Furthermore, the indirect and situation-based effects of technologies are articulated much clearer, which makes an application of the concept to television especially pertinent: contrary to film (and the panopticon for that matter) television's basic fact of transmission necessarily separates the viewers not only from the site of image production, but also from the "co-presence of subjects contained within a field of the gaze"[48] – any direct control of the viewer is thus barred. The entire regime of mobile privatization is less based on the panopticon's "visible display of force," but rather on "the values of individualism and hedonistic pleasure, as well as desires for social recognition and dreams of community."[49] This might also be the reason why governmentality studies (in contrast to the apparatus/dispositif concept) was earlier and more intensively taken up in television than in film studies.[50]

Governing, in Foucault's sense, encompasses all manner of strategies aiming to structure the behavior of both people and things; these strategies, however, do not restrict or dictate, but rather take the inner dynamics of the governed entities into account and thus create a milieu that structures the field of possible behavior.[51] Technologies of governing are the constellations of techniques, institutions, and procedures that make it possible to gain knowledge about the entities in question and to establish "rational" modes of intervention, which rather enact a "governing at a distance" or a "conduct of conduct" than direct physical discipline.[52] Part of this complex are so-called technologies of the self, meaning a

complex of discourses, tools, and practices that allow (and incite) individuals to systematically modify their own behavior.

To call this technological is more than just a metaphorical way of speaking. Technology here means that a specific rationality is established that defines a field of intervention and structures possible, alternative strategies of intervention. It also underlines that technology is not only defined by its capacity to intervene into such a field to structure or to improve behavior, but also by the very possibility to change, to improve the technology itself. The "improvability" of technology does not consist in linear progress, but rather in the constant reaction to conjunctural-defined problems, so-called "problematizations."

In television studies, this perspective was taken up in many ways. Most prominently, technologies of governing have been identified in the genre of reality TV, which not only displays examples of self-improvement, but also acts very much as "life intervention"[53] and thereby contributes to a broader reinvention of government in which former public institutions are privatized or delegated to self-responsibility. Commercial television, often in close cooperation with expertise from the corporate and business sectors, proliferates "the everyday techniques through which individuals and populations are expected to reflect upon, work on and organize their lives and themselves as an implicit condition of their citizenship."[54]

Seen from a broader perspective, the entire institutional and technological development of television is very much shaped – and in a sense "technologized" – by the question of governing. Dependent on the different kinds of television regimes (e.g., state controlled or commercial), this question was formulated in different ways. However, from its inception, television in most countries was conceived of as a medium that could reach the entire population and thus could possibly contribute to improving the people's conduct, be it as citizens or consumers. The placement of the medium in the domestic setting made it into a technology of governing that was feared and desired even more. In ways that are not that different from sexuality as analyzed by Foucault, television guarantees access to the family's private behavior and through that affects the entire population.

For the case of US television, Anna McCarthy has shown how from the very beginning, TV stations and sponsors were busy trying to find out as much as they could about their audience, classifying its different groups and producing knowledge about their tastes and reactions. Television thus allowed some people/institutions to define themselves as "elite" and thus entitled (and obligated) to "guide" the population.[55] This guidance, however, is not plainly given by inherent technological features of television; rather, the desire to govern through television incites constant transformations of the program schedule, of content, of policy regulation, and of paratexts advising the audience how to appropriately use the medium to society's – and their own – advantage. Television is "technologized" by equipping it (or some of its heterogeneous elements) with interven-

tionist potential and with rationales for transformation and improvement. In this process, the medium is simultaneously considered to be a problem (for family life, for education, for citizenship) and an instrument to deal with these problems.[56] Through the endeavors to govern, television is established as a topology of things and people – a milieu – that allows for a systematic reflection on, and intervention in, the behavior of populations, (target) groups, and identities which are themselves co-constituted through these procedures of knowledge production.

Often (as in the film theoretical discussion of the dispositif) technology is discussed in terms of its rigidity, a matter of materially or procedurally determining what can be done and what cannot. It might actually be one of the most important gains from studying television as a technology of governing to question this idea: It is not the stable (technological) constellation that characterizes television's power effects, but the constant transformation that point to and identify certain audiences and behaviors in need of transformation. The improvability of "content," of image quality and of individual access to television contribute to television's character as technology of governing just as much as the improvability of children's knowledge about commercials and parents knowledge about the appropriate "content" for their children.

With its constantly new formats and schedules, however, with the continuous connection to quite fundamental technological add-ons (cable, satellite, video, DVD, and so on), television was a forerunner to the permanent state of transition we find ourselves in in present-day gadget – and update – culture. But how to analyze technology if it is obviously less defined by setting binding standards than by constantly introducing new ones? Here, the concept of technologies of governing allows us to describe the transformation patterns themselves as technological processes: the technological, then, does not lie in the distinct constellations before and after the transformation – as if television before the VCR would have been a different dispositif from television after the VCR. Rather, the technological can be located in the multiple rationalities structuring the process of transition: the incitement toward more individuality, the effort to get more "control" over domestic life,[57] the problem of how to adapt techniques of the body to the techniques of remote controls, and so on. Television's governing potential, thus, is based on many different, alternative strategic interventions in individual and social, domestic and national issues.

Beyond Archaeology: Genealogy of the Televisual

Finally, this constant transformation of television and its domestic setting inspires a certain re-adjustment of the historical approaches to technology. In place of the archaeology-inspired cinema and digital media histories, television research tends toward a more genealogical approach. Again, this methodological

debate remains implicit in most television history writing (and the opposition between archaeology and genealogy is far from clear[58]), but we might gain from a more explicit profiling of its alternative approaches.

The concept of archaeology became important in film studies and in media studies, especially in German media theory, in a number of ways. Getting inspiration from various backgrounds (in their overview, Huhtamo and Parikka mention Walter Benjamin, Siegfried Giedion, McLuhan, and others[59]), the most explicit reference point is Foucault's archaeological method, which aims at an alternative history, one not looking for origins and developments but for historical ruptures and "conditions of existence."[60]

Instead of focusing on the genius of inventors, a linear dynamic of progress, and a successive enfolding of *the* ontology of a medium, an archaeological approach would ask: What are the historical formations (the structures of historical knowledge and practices) that make a particular invention possible and useful, and that define its historical ontology? But it would then also ask: How did a technological constellation contribute to the historically specific rules that guide the production of knowledge and subjectivity? The second question, quite clearly, goes far beyond the history of a single medium and Bernhard Siegert, more generally, warned that any appropriation of "archaeology" to write an alternative history of media rehistoricizes and belittles the term.[61]

The first question, however, is more closely adaptable to the history of a single medium and it provokes a constant re-conceptualization of its coherence and identity. Thomas Elsaesser, for instance, argued for such an archaeologically inspired film history that would switch back and forth between the present and the past. Recent developments (digital 3D, digital projection and distribution, and so on), which are too easily conceived of as challenges to the identity of cinema, can better be used to re-discover already forgotten sideways and seemingly obscure aspects of the medium's history; archaeological findings (abandoned technologies, formal aberrations, etc.) can thus force us to include aspects in film history which have long been excluded by the dominance of the narrative feature film.[62]

In contrast, historical television research, which got a boost in the early 1990s, can be described as being genealogical, since it focuses less on synchronic formations than on a diachronic series of struggles that develop around technologies while at the same time transforming them. The notion of power, which is here to be understood not as the power of one specific technology, but as a matrix of power which rests on, produces, and transforms technology, is very present in these genealogies of television. They aim to tell a history of the present in which the well established and naturalized building blocks of television – think "audience," "household," "information/entertainment" – are analyzed in their contingent, heterogeneous, and contested pre-conditions. Where an archaeological approach mainly aims to enable new perspectives, the genealogical approach

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aims for a critical assessment of the turning points which gave technologies a certain shape and excluded possible alternatives.

The production of the domestic sphere (a precondition for television as we know it) involved a redistribution of public and private and of male and female spaces – as it was connected to programs of suburbanization, cheap mortgages, and the establishment of the nuclear family.[63] The audience, a concept now considered a key element of television, just as new media seem to have replaced it with the "user," is not a given of television either; genealogical research has focused on the constant struggle to produce and quantify audiences,[64] to address and educate them.[65]

As noted, the research I refer to here does not necessarily describe itself as genealogical. I am using this label firstly to mark a certain distinction from the more prominent approach (or, better, different approaches) of media archaeology and its interest in surprising findings and moments of rupture. Secondly, the label allows me to point out the broad and partly ambivalent role that technology has in historical research on television as a medium in transition. Television technology, even in its more narrow meaning, has constantly changed. In the 1960s, at least in the US, the VCR was being discussed as a means for improving the medium of television – however, this was heavily contested, as this improvement could either consist in selling or renting out high-culture on tape with the intent to replace the dominant TV fare or in offering more individualized access to the regular TV programs.[66] As in most other struggles defining television's transition, the shape and use of machines may have been what was at stake in these debates, but they also transformed television – and its different technological developments – into technical metaphors for the entire society:

> [T]elevision continues to be a central medium not just for entertainment or information, but also for speculations about the present state of gender roles, family life, race relations, international conflict, and the general prospects for art in media culture.[67]

The genealogical view of technology avoids any clear-cut distinction between the discourses on technology and the technologies themselves (contrary to Kittler's explicit claim that discourse is no longer an appropriate level of media analysis[68]); it shows that the medium of television is in permanent crisis and it is this crisis that makes it technologically, metaphorically, and culturally into a powerful medium. While archaeological research aims at showing that, from hindsight, a technology could also be seen in a different perspective, genealogical research shows that technologies always already were seen, used, and defined from different perspectives: they exist and function because of the competing concepts and strategies.

For the present, the genealogical approach furthermore allows us to avoid a similarly clear-cut distinction between television and other (digital, new, social) media. If the digital image was considered a turning point in film history, the mobility of digital media could be conceived of as a similar challenge to television; after all, the domestic medium, however heterogeneous it might have been, was organized around the television set placed in one, or several, rooms of the static domestic space. Yet more recent research has shown that questions of, first, portability and, later, mobility already accompanied some of television's historical transformations – and different forms of mobile technologies have since re-defined the "essence" of television.[69] This also allows us to discuss which material technologies (machines, gadgets), discursive technologies (promises, classifications), and practical technologies (body practices, social relationships) that define the field of mobile media are taken up from the context of television, and which are abandoned, re-invented, or re-mediatized. Television's genealogy thus provides insight into technologies and the power relations making them possible, which might be overlooked by only focusing on the specificities of the new digital, social media.

Conclusion: Toward Post-Televisual Technologies

When in May 2013 Microsoft presented its new video game console, the Xbox One, this – once again – was presented as a conspicuously hybrid or convergent piece of technology: it not only includes a Blu-ray disc drive and supports the presumably next-generation flatscreen's 4K resolution, it also offers recording functionality (if only for recording game play), and can partly function as television set-top box offering an electronic program guide for navigating television shows. It therefore figures as yet another example of digital media's fantasy of unification, the promise to bring formerly separated media functions together in one coherent interface[70] (and with only one remote control) – while in fact only contributing to the ongoing multiplication of standards, gadgets, points of access, modes of use, and so on. For some it also proves that television, after being declared dead more than once, is persistent and will become an economically and technically important node of digital culture. Technologically, however, it is ever more uncertain just what television is and where/how one can identify it.

As already stated at the beginning of this chapter, a closer look at the domestic incarnation of television delivers conceptual tools that also allow to get a better grip on the most recent transformations of television. The extended notion of technology and its theoretical sharpening through the concepts of dispositif, governmentality, and genealogy does surely not ignore the dramatic consequences of digital and social media. However, instead of taking the technological features of the digital (and its impact on television) for granted, this extended notion locates the *technological* aspect of media in the constantly transforming

connections between its heterogeneous elements. This ensemble of gadgets, infrastructures, discourses and practices becomes technology through enabling strategic interventions, improvability and knowledge production.

Television never was anything but a constellation of heterogeneous technologies and respective problematizations that structured the application and transformation of these technologies that react to and intervene in contested cultural fields. Neither the problematizations, nor the multiple technologies characterizing a certain moment of television necessarily have a common trajectory. Some of them survive and come to new life in a re-organized media constellation. The question is less whether television will die or persist, but which televisual technologies (and problematizations) are taken up by what comes next and will thus still shape media culture. Lisa Parks summarized this very well:

> A convergent approach to television involves keeping the meanings of the technology dynamic and malleable, open to being mobilized and used in different directions, across languages and disciplines, and in unpredictable ways. It also involves rewriting our critical terms and keeping them useful as television combines with and is altered by new technologies.[71]

Additionally, television's constant transition suggests that any technology (and this is even more true of a medium combining quite a number of technologies) gets at least part of its cultural impact not from what it is and what it does (reliably, repetitive, hidden from the surface), but from how it changes and can be changed.

86. Brian Winston, *Technologies of Seeing: Photography, Cinema and Television* (London: British Film Institute, 1996), 109-118.

87. *Ibid.*, 4-6, 117.

88. *Ibid.*, 109.

89. For instance, SETRED's "Clariti Display and Samurai-3D Medical Imaging Software enable[s] surgeons, radiologists and other medical professionals to view more patient image information at one time than ever before to potentially save time, reduce errors and improve certainty of surgical interventions" ("Clariti: Holographic 3D Visualisation Technology for Medical Applications," brochure, available at http://www.setred.com/setred_clariti.pdf).

90. On the Hewlett-Packard research, see: Damien Gayle, "Get Ready for the iPhone 3D: Radical New Smartphone Display Can Show Three Dimensional Images without Special Glasses," available at http://www.dailymail.co.uk/sciencetech/article-2296463/Revolutionary-3D-display-unveiled-today-used-smartphones-years.html#ixzz2cJjB07hc. On Neil Dodgson's work at the Cambridge University Computing Laboratory on autostereoscopic displays, see http://www.cl.cam.ac.uk/research/rainbow/research/autostereo.html.

91. On the specific challenges of 3D aesthetics, see Barbara Flueckiger's illuminating article, "Aesthetics of Stereoscopic Cinema," *Projections* 6, no. 1 (Summer 2012).

92. On the concept of how films build "worlds" for spectators, see Dan Yacavone, "Toward a Theory of Film Worlds," *Film-Philosophy* 12, no. 2 (September 2008): 83-108.

93. See the review of HOW THE WEST WAS WON by Dave Kehr: "How the West Was Won," *New York Times*, September 8, 2008, available at http://www.nytimes.com/2008/09/09/movies/homevideo/09dvds.html.

94. RICHARD III has been restored with a 4k scan of original elements and published by Criterion.

95. Comments by Jerzy Hoffman on making his film THE BATTLE OF WARSAW 1920 (2011) in 3D, in an interview with Konrad J. Zarębski: "*Battle of Warsaw 1920*: Interview with Director Jerzy Hoffman," *Culture.pl*, July 2011, available at http://www.culture.pl/web/english/resources-film-full-page/-/eo_event_asset_publisher/eAN5/content/battle-of-warsaw-1920-interview-with-director-jerzy-hoffman.

96. Some 6% of total film viewings in the UK took place in cinemas, according to research conducted by Ipsos-MORI for the Northern Alliance and Ipsos MediaCT study *Opening Our Eyes*.

97. Elsaesser, "The 'Return' of 3-D," 221.

98. See Leon Gurevitch's "research provocation," "Virtual Finally Reality? The Media Archaeologies of Immersive 3D and the Oculus Rift," *Stereoscopic Media*, August 19, 2013, accessed at http://www.stereoscopicmedia.org/?p=395.

Television's Many Technologies: Domesticity, Governmentality, Genealogy

1.   I wish to thank Ian Christie, Annie van den Oever, Viola ten Hoorn and Florian Duijsens for their feedback and editorial support while writing this article.

2. In recent years, production studies not only paid more attention to technology but also showed that inside television production an intense and partly sophisticated reflection on technology always was in existence.

3. Lorenz Engell, "Tasten, Wählen, Denken. Genese und Funktion einer philosophischen Apparatur," in *Medienphilosophie. Beiträge zur Klärung eines Begriffs*, ed. Stefan Münker, Alexander Roesler and Mike Sandbothe (Frankfurt a.M.: Fischer, 2003), 54f.

4. Evgeny Morozov, *To Save Everything, Click Here: The Folly of Technological Solutionism* (New York: PublicAffairs, 2013), 24.

5. Marshall McLuhan, *Understanding Media: The Extensions of Man* (Cambridge, MA: MIT Press, 1994).

6. Josh Shepperd, "Medien Miss-verstehen. Marshall McLuhan und die National Association of Educational Broadcasters, 1958-1960," *Zeitschrift für Medienwissenschaft* 5 (2011): 25-43.

7. Even if his influence is obvious in prominent books such as: Neil Postman, *Amusing Ourselves to Death* (London: Penguin Books, 1986).

8. Raymond Williams, *Television: Technology and Cultural Form* [1973] (London & New York: Routledge, 1990).

9. See also: Hans Magnus Enzensberger, "Constituents of a Theory of the Media," in *The New Media Reader*, ed. Noah Wardrip-Fruin and Nick Montfort (Cambridge, MA: MIT Press, 2002), 261-275.

10. John Durham Peters, "Two Cheers for Technological Determinism" (presented at the "Media Histories" Conference, New York, 2011), available at http://vimeo.com/25591045.

11. Friedrich Kittler, *Optical Media: Berlin Lectures, 1999* (Cambridge: Polity, 2010), 207-224.

12. McLuhan, *Understanding Media*, 33.

13. *Ibid.*, 313.

14. Theodor W. Adorno, "Prologue to Television," in *Critical Models: Interventions and Catchwords* (New York: Columbia University Press, 2005), 53.

15. David Morley, "Television: Not so Much a Visual Medium, More a Visual Object," in *Visual Culture*, ed. Chris Jenks (London & New York: Routledge, 1995), 176.

16. Roger Silverstone, "From Audiences to Consumers: The Household and the Consumption of Communication and Information Technologies," in *The Audience and Its Landscape*, ed. James Hay, Lawrence Grossberg and Ellen Wartella (Oxford & Boulder: Westview, 1997), 285.

17. Williams, *Television*, 114.

18. *Ibid.*, 105.

19. *Ibid.*, 113.

20. *Ibid.*, 114.

21. David Morley and Roger Silverstone, "Domestic Communication – Technologies and Meanings," *Media, Culture and Society* 12 (1990): 35.

22. For instance: Hermann Bausinger, "Media, Technology and Daily Life," *Media, Culture and Society* 6 (1984): 343-351.

23. Tania Modleski, "The Rhythms of Reception: Daytime Television and Women's Work," in *Regarding Television: Critical Approaches – An Anthology*, ed. E. Ann Kaplan (Los Angeles: American Film Institute, 1983), 67.

24. Teresa de Lauretis, *Technologies of Gender: Essays on Theory, Film and Fiction* (Bloomington & Indianapolis: Indiana University Press, 1987).

25. Arjun Appadurai, *Modernity at Large: Cultural Dimensions of Globalization* (Minneapolis: University of Minnesota Press, 1996), 33.

26. David Morley and Kevin Robins, *Spaces of Identity: Global Media, Electronic Landscapes and Cultural Boundaries* (London & New York: Routledge, 1995).

27. Amanda D. Lotz, ed., *Beyond Prime Time: Television Programming in the Post-Network Era* (New York: Routledge, 2009); Michael Curtin, "Matrix Media," in *Television Studies after TV: Understanding Television in the Post-Broadcast Era*, ed. Graeme Turner and Jinna Tay (London: Routledge, 2009), 9-19.

28. Bausinger, "Media, Technology and Daily Life," 346.

29. Thomas Elsaesser, "The New Film History as Media Archaeology," *Cinémas* 14, no. 2 (2004): 78.

30. John Corner, *Critical Ideas in Television Studies* (Oxford: Clarendon Press, 1999), 5.

31. Jostein Gripsrud, "Broadcast Television: The Chances of Its Survival in a Digital Age," in *Television after TV: Essays on a Medium in Transition*, ed. Lynn Spigel and Jan Olsson (Durham, NC: Duke University Press, 2004), 210-223.

32. John T. Caldwell, *Televisuality: Style, Crisis and Authority in American Television* (New Brunswick, NJ: Rutgers University Press, 1995).

33. *Ibid.*, 73f.

34. *Ibid.*, 9.

35. John T. Caldwell, "Second-Shift Media Aesthetics: Programming, Interactivity, and User Flows," in *New Media: Theories and Practices of Digitextuality*, ed. Anna Everett and John T. Caldwell (London & New York: Routledge, 2003), 136.

36. E.g., David Beer, "Power through the Algorithm? Participatory Web Cultures and the Technological Unconscious," *New Media & Society* 11, no. 6 (2009): 985-1002; Alexander R. Galloway, *Protocol: How Control Exists after Decentralization* (Cambridge, MA: MIT Press, 2004); Richard Rogers, *Digital Methods* (Cambridge, MA: MIT Press, 2013).

37. Bruno Latour, "Technology Is Society Made Durable," in *A Sociology of Monsters: Essays on Power, Technology and Domination*, ed. John Law (London & New York: Routledge, 1991), 103-131.

38. More recently, more explicit connections between television research and actor-network theory have been made. For the example of the remote control see Mike Michael, *Reconnecting Culture, Technology and Nature* (London & New York: Routledge, 2000), and for a production studies-oriented approach see: John T. Caldwell, *Production Culture: Industrial Reflexivity and Critical Practice in Film and Television* (Durham, NC: Duke University Press, 2008); Jan Teurlings, "Unblackboxing Production: What Media Studies Can Learn from Actor-Network Theory," in *After the Break: Television Theory Today*, ed. Jan Teurlings and Marijke de Valck (Amsterdam: Amsterdam University Press, 2013), 101-116.

39. For a systematic comparison of the concepts, see Simon Ganahl, "Ist Foucaults 'dispositif' ein Akteur-Netzwerk?," *Foucault-Blog – UZH – Forschungsstelle Für Sozial-Und Wirtschaftsgeschichte*, April 1, 2013, available at http://www.fsw.uzh.ch/foucault-blog/blog/9/ist-foucaults-dispositif-ein-akteur-netzwerk.

40. In France, where the term is very much an everyday word, television in the 1920s and 1930s was already being described as a dispositif. See for instance the literature referenced in R.W. Burns, *Television: An International History of the Formative Years* (London: IET, 1998), 142-182. The term is still used in French television research: cf. Frank Kessler, "Notes on Dispositif," 2006, available at http://www.let.uu.nl/~Frank.Kessler/personal/notes%20on%20dispositif.PDF. In Germany, the domestic setting of television is amongst others described as a dispositif by Monika Elsner, Thomas Müller, and Peter M. Spangenberg, "Zur Entstehungsgeschichte des Dispositivs Fernsehen in der Bundesrepublik Deutschland der Fünfziger Jahre," in *Institution, Technik und Programm. Rahmenaspekte der Programmgeschichte des Fernsehens*, ed. Knut Hickethier (München: Fink, 1993), 31-66; Knut Hickethier, "Dispositiv Fernsehen. Skizze eines Modells," *Montage/AV* 4 (1995): 63-83.

41. I am here mainly referring to the discussion of the concept in the 1970s and 80s in texts by Jean-Louis Baudry, Jean-Louis Comolli, Stephen Heath and others. Christian Metz's somewhat different conceptualization of the cinematic dispositif also points out the inevitable embedding of the spectator through the technology setup: "the spectator can do no other than identify with the camera" (Christian Metz, *The Imaginary Signifier: Psychoanalysis and the Cinema* [Bloomington: Indiana University Press, 1982], 49). Later on, the concept was also used to distinguish between historically different constellations of cinema – e.g., the early "cinema of attractions" (Frank Kessler, "The Cinema of Attractions as Dispositif," in *The Cinema of Attractions Reloaded*, ed. Wanda Strauven [Amsterdam: Amsterdam University Press, 2006], 57-69).

42. In Baudry's first text on the issue, the term dispositif (in French: "dispositif particulier") is used when describing the film audience as being captured or captivated and comparing this to the suspension of mobility in Plato's cave (Jean-Louis Baudry, "Cinéma: Effets Idéologiques Produits par l'Appareil de Base," *Cinéthique* [1970]: 6).

43. John Ellis, *Visible Fictions: Cinema – Television – Video*, rev. ed. (London & New York: Routledge, 1992).

44. Michel Foucault, *Power/Knowledge: Selected Interviews and Other Writings, 1972-1977*, ed. Colin Gordon (New York: Pantheon, 1980), 194.

45. In *Discipline and Punish*, Foucault describes the panopticon as creating a topology which allows the application of discourses, classifications and hierarchies (it thus does not work purely architecturally or materially). The constant criticism and transformation of the system very much contributed to its functioning (Foucault, *Discipline and Punish: The Birth of the Prison* [New York: Penguin Books, 1991], especially Part 4). Additionally, in his *History of Sexuality* he shows how individualizing practices and strategies of liberation are enabled by and support a dispositif, thereby not only questioning the dominant model of power as only being repressive but

also the too easy equation between practices and resistance (Foucault, *The History of Sexuality: An Introduction, Volume 1* [New York: Vintage Books, 1990]).

46. James Hay offers an insightful comparison between Foucault and Williams: James Hay, "Unaided Virtues: The (Neo-) Liberalization of the Domestic Space," *Television & New Media* 1 (2000): 53-73.

47. Matthias Thiele, "Vom Mediendispositiv zum medialen Kombinat aus Dispositiven," *kultuRRevolution* no. 55/56 (2009): 41-46.

48. Clive Barnett, "Culture, Government and Spatiality: Reassessing the 'Foucault Effect' in Cultural-Policy Studies," *International Journal of Cultural Studies* 2 (1999): 385.

49. Margaret Morse, "An Ontology of Everyday Distraction: The Freeway, the Mall, and Television," in *Logics of Television: Essays in Cultural Criticism*, ed. Patricia Mellencamp (Bloomington & Indianapolis: Indiana University Press, 1990), 51.
Several technological aspects of television certainly have nevertheless been described in relation to the panopticon, which is also undergoing a comeback in more recent discussions on surveillance culture and social media. See Ien Ang, *Desperately Seeking the Audience* (London & New York: Routledge, 1991), and John Hartley, "Power Viewing: A Glance at Pervasion in the Postmodern Perplex," in *The Audience and Its Landscape*, ed. James Hay, Lawrence Grossberg and Ellen Wartella (Oxford & Boulder: Westview, 1997), 223. For a more recent discussion of the panopticon in relation to online surveillance, see e.g., Taina Bucher, "Want to Be on the Top? Algorithmic Power and the Threat of Invisibility on Facebook," *New Media & Society* 14, no. 7 (2012): 1164-1180, and Mark Andrejevic, "The Discipline of Watching: Detection, Risk, and Lateral Surveillance," *Critical Studies in Media Communication* 23, no. 5 (2006): 391-407.

50. As an example for film studies see: Lee Grieveson, "On Governmentality and Screens," *Screen* 50 (2009): 180-187.

51. Michel Foucault, *Security, Territory, Population: Lectures at the Collège de France, 1977-1978* (Houndmills: Palgrave, 2007), 21.

52. Here, Foucault also makes a helpful distinction between the "history of techniques" (for television those could be the television set, the remote control, a particular form of ratings, and so on) and the "history of technologies," that is, the "much more fuzzy history of the correlations and systems of the dominant feature," taking up, multiplying and redeploying the techniques (Foucault, *Security, Territory, Population*, 8f).

53. Jack Z. Bratich, "'Nothing Is Left Alone for Too Long': Reality Programming and Control Society Subjects," *Journal of Communication Inquiry* 30, no. 1 (2006): 65-83.

54. Laurie Ouellette and James Hay, "Makeover Television, Governmentality and the Good Citizen," *Continuum: Journal of Media & Cultural Studies* 22, no. 4 (2008): 473.

55. Anna McCarthy, *The Citizen Machine: Governing by Television in 1950s America* (New York: The New Press, 2010). For a similar perspective on the introduction of public service television in the United States, see Laurie Ouellette, *Viewers Like You? How Public TV Failed the People* (New York: Columbia University Press, 2002).

56. Markus Stauff, "The Governmentality of Media: Television as 'Problem' and 'Instrument,'" in *Media, Culture, and Mediality: New Insights into the Current State of Re-*

search, ed. Ludwig Jäger, Erika Linz, and Irmela Schneider (Bielefeld: Transcript, 2010), 263-281.

57. Hay, "Unaided Virtues."

58. Neither in Foucault, nor in most media research that goes by the name of media archaeology, is there a clear-cut distinction between archaeology and genealogy. In Foucault's writing, genealogy is introduced later and modifies his archaeological approach – on which it is still based. Nevertheless, I find the two terms useful to mark the difference television research might bring to the more general discussions on the history of media/technologies. While in some older texts, the archaeological approach sometimes is opposed to a conventional (non-Foucauldian) concept of a "genealogical chart" (e.g., Elsaesser, "The New Film History," 86), more recent texts tend toward underlining the interrelation between media archaeology and (Foucauldian) genealogy (e.g., 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; see in particular p. 69).

59. Erkki Huhtamo and Jussi Parikka, eds, *Media Archaeology: Approaches, Applications, and Implications* (Berkeley: University of California Press, 2011), 2.

60. Michel Foucault, *Archaeology of Knowledge* (London: Routledge, 2002), 30. Foucault's archaeological approach also was one of the major inspirations for Kittler's concepts of "Aufschreibesysteme" [Discourse Networks] – he explicitly wanted to add technical media, hardware and software to Foucault's library – and book-based approach (see also the conversation with Geoffrey Winthrop-Young in this book); however, Kittler never intensively discussed the later work of Foucault and its two major concepts "genealogy" and "governmentality" – both of which, in my opinion, are more open and appropriate to include new media and their specific materialities.

61. Bernhard Siegert, "Cacography or Communication? Cultural Techniques in German Media Studies," *Grey Room* no. 29 (2007): 29.

62. Elsaesser, "The New Film History."

63. Lynn Spigel, *Make Room for TV: Television and the Family Ideal in Postwar America* (Chicago: University of Chicago Press, 1992); John Hartley, *Uses of Television* (London & New York: Routledge, 1999), 92-111.

64. Ang, *Desperately Seeking*; Eileen R. Meehan, "Why We Don't Count: The Commodity Audience," in *Logics of Television: Essays in Cultural Criticism*, ed. Patricia Mellencamp (Bloomington/Indianapolis: Indiana University Press, 1990), 117-137.

65. Ouellette, *Viewers Like You?*; McCarthy, *The Citizen Machine*; Hartley, "Power Viewing."

66. Max Dawson, "Home Video and the 'TV Problem': Cultural Critics and Technological Change," *Technology and Culture* 48, no. 3 (2007): 524-549.

67. Dawson and Spigel, "Television and Digital Media," 276.

68. Friedrich Kittler, *Gramophone, Film, Typewriter*, Writing Science (Stanford: Stanford University Press, 1999), 5.

69. Lynn Spigel, "Portable TV: Studies in Domestic Space Travels," in *Allegories of Communication: Intermedial Concerns from Cinema to the Digital*, ed. Jan Olsson and John Fullerton (Rome: John Libbey, 2004), 55-80; Max Dawson, "Defining Mobile Tele-

vision: The Social Construction and Deconstruction of New and Old Media," *Popular Communication* 10, no. 4 (2012): 253-268.

70. Hartmut Winkler, *Docuverse. Zur Medientheorie der Computer* (Regensburg: Boer, 1997), 55-64.

71. Lisa Parks, *Cultures in Orbit: Satellites and the Televisual* (Durham, NC: Duke University Press, 2005), 169.

Postmodern Hi-fi vs. Post-Cool Lo-fi: An Epistemological War

1. One can remember this artistic choice did not wait for the CGI revolution to arise: see battlefields staged by D.W. Griffith or C.B. DeMille in order to allow large-scale shots. Technologies of real crowds management or real pyrotechnics are still technologies.

2. On our polar type of encoding data, see Alain Berthoz, *The Brain's Sense of Movement: Perspectives in Cognitive Neuroscience* (Cambridge, MA: Harvard University Press, 2002), 99-100. On further links between this encoding and movies, see Laurent Jullier, "Should I See What I Believe? Audiovisual Ostranenie and Evolutionary-Cognitive Film Theory," in *Ostrannenie*, ed. Annie van den Oever (Amsterdam: Amsterdam University Press, 2010): 119-140.

3. This style defines itself by hand-held cameras making blurred pans. See David Bordwell, "Unsteadicam Chronicles," August 17, 2007, available at http://www.davidbordwell.net/blog/2007/08/17/unsteadicam-chronicles.

4. Svetlana Alpers, *The Art of Describing: Dutch Art in the Seventeenth Century* (Chicago: University of Chicago Press, 1983): 45, 69. Adjectives derive from German astronomer Johannes Kepler (1571-1630), inventor of a refracting telescope, and Italian humanist Leon Battista Alberti (1404-1472), whose treatise *Della pittura* describes perspective.

5. French philosopher Maurice Merleau-Ponty thought that the paintings of Paul Cezanne could achieve this way of representing things. These paintings of course do not display columns of numbers, nonetheless they stay far from photorealism.

6. The sound categories tend to be blurred too: for instance THX sound system replaces classical semantic boundaries between words, music and noise, by technical-physiological boundaries between low, medium and high frequencies.

7. Roger Odin, "Du spectateur fictionnalisant au nouveau spectateur: approche sémio-pragmatique," *Iris* 8 (2nd semester 1988): 121-138.

8. P. Winkielman, N. Schwarz, T. Fazendeiro, and R. Reber, "The Hedonic Marking of Processing Fluency: Implications for Evaluative Judgment," in *The Psychology of Evaluation: Affective Processes in Cognition and Emotion*, ed. J. Musch and K.C. Klauer (Mahwah, NJ: Erlbaum, 2003): 190.

9. P. Winkielman, N. Schwarz, and A. Nowak, "Affect and Processing Dynamics: Perceptual Fluency Enhances Evaluations," in *Emotional Cognition: From Brain to Behaviour*, ed. S. Moore and M. Oaksford (Amsterdam: John Benjamins, 2002): 111.

10. Philippe Lejeune, *On Autobiography*, Vol. 52 of *Theory and History of Literature*, ed. and with a foreword by Paul John Eakin, trans. Katherine Leary (Minneapolis: Univer-