Thesis Eleven
107(1) 3–5

DOI: 10.1177/0725513611423610
the.sagepub.com

Introduction: Friedrich Kittler

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Friedrich A. Kittler, who died on 18 October 2011, was the most important, original and controversial German media theorist of his time. Departing from a philological background in German literature and arriving at a theory that combines the questions of technology, discourse and power, his oeuvre has had considerable impact on scholarship in the humanities over the past three decades. In contrast to Marshall McLuhan, who also started his career as a scholar in philology, Kittler's theory is not anthropological in its epistemological set-up – media are not extensions of man; rather, Kittler's theory is modelled after a Foucauldian-style archaeology but without Foucault's 'blind' restriction to the medium of print.

Kittler's works have either 'produced' ardent followers or have attracted vitriolic comments. These strong reactions to his works can in part be ascribed to his own academic style, which does not shy away from polemic commentary. Most of it is spurred by Kittler's early desire to overcome a traditional type of literary criticism that ignores the impact of technology on the process of the production of meaning. And this lack of reflection is particularly apparent in the 'art of interpretation' (especially when this 'art' is relying on hermeneutics to justify its approach). Kittler's work instead – strongly influenced by Shannon's communication theory, Lacan's writings on language and psychoanalysis and, as mentioned, Foucault's archaeology of the humanities – attempted from early on to show how the technological dispositive (in various historical periods) is key to the cultural, societal and political environment at any time.

The scholarly articles and essays of this issue set out to introduce Kittler to the reader. The aim is to further a broader reception of his work in the anglosphere, and in particular in Australia, where he remains virtually unknown.

Geoffrey Winthrop-Young's article is a comprehensive intellectual account of Kittler's reception in the anglosphere to the present day and provides not only a thorough history of Kittler's academic reception in the US and the UK but also places his theory

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alongside the Canadian School of Media and stresses differences as well as similarities between the reception of the two approaches on either side of the Atlantic. And surprisingly for those of us who have been trained to look out for differences rather than similarities, the Kittler of the anglosphere, Winthrop-Young suggests, 'is not unlike the German Kittler: both have been turned into the grand bogeyman of technological determinism'.

Peter Krapp situates Kittler's oeuvre within the wider dispute between the sciences and the humanities. Rather than seeking to bridge or overcome the two cultures in academia, Kittler situates himself in the gap between the two. Krapp compares Kittler's and Derrida's self-referential theories as interdisciplinary tools by taking them as models – scaled down, modest, functional, pragmatic, and dynamic – to develop and test hypotheses, whether they be in philosophy, literature, or media technology.

Markus Krajewski, who studied with Kittler and has remained a close colleague to the present day, gives a rare insight into the world of Kittler from a student's perspective. Kittler has never treated hardware simply as a metaphor – he expected real computer literacy from his students. Kittler's technodeterminism here does, of course, find its epistemological shape, but it clearly needs to be seen in terms of the necessity to acquire essential skills in today's world.

Matthias Bickenbach's article relates Kittler's work to the concept of culture. Bickenbach revisits the dichotomy between technology and culture historically, which Krapp's article dissects systematically, arguing that the technique of reading brings both parts together.

Similarly, but from the perspective of literature as fine art, Niels Werber analyses the demise of the hermeneutical status quo of literature throughout the writings of Kittler but also critically accounts for central theoretical concepts of Kittler's approach in general, resulting in the observation of a revival of the technique of reading passages as a result of the epistemological set-up. And reading passages comes close to the reading methods of the predecessors of modern hermeneutics, where reading the difficult or obscure passage was more important as a cultural technique than the 'understanding' of the assumed totality of a text.

Finally, my contribution attempts to give an overview of Kittler's approach to optical media. In the case of the optical paradigm, which encompasses all particular forms of imagery, the article examines Kittler's approach to images within the wider theoretical framework of his theory as well as analysing how Kittler's theoretical approach makes a particular technology 'speak'.

As much as Kittler's work has been rejected as too closely following a technical *a priori,* his work has at the same time opened up avenues of investigation that traditional critical and cultural studies had overlooked. Kittler's scholarship ranges widely across such areas as literature, literary theory, machines, history of communication, history of culture, optical media, war, Pink Floyd, gramophone, psychophysics, history of education, Dracula, Disco, to motherhood and alphabeticization. What makes Kittler's work attractive to all areas of academe is not only the broadness of his scholarship but the analysis of previously unconnected fields of research.

Biographical note

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Articles

Thesis Eleven
107(1) 6–20

DOI: 10.1177/0725513611418036
the.sagepub.com

Krautrock, Heidegger, Bogeyman: Kittler in the anglosphere

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Abstract
The paper discusses some of the key factors that shaped Friedrich Kittler's anglophone reception. Four points are of special importance: the truncated appropriation of Kittler's 'middle period' by American academics; the structural and ideological reasons for the failure of North American German Studies to capitalize on the growing interest in Kittler; the charges of technodeterminism; and Kittler's difficult role in the debate over posthumanism.

Keywords
German Studies, Friedrich Kittler, media theory, posthumanism, poststructuralism, United States

I. Germany's most disturbing home theories

In *The Genealogy of Morality* Friedrich Nietzsche speaks of the 'deep and icy mistrust that the German evokes as soon as he comes to power', an echo, so he argues, 'of that inextinguishable horror with which Europe viewed the raging of the blond Germanic beast' (Nietzsche 2007: 23). Fortunately, the blond beast, if it ever did exist, has gone the way of those who in the 1930s tried to resurrect it, but the horror – or amusement – evoked by some of the more outlandish instances of Teutonic behaviour survives, albeit in satirically diluted fashion. One prominent example is 'Sprockets', the *Saturday Night Live* skit from the early 1990s featuring Mike Myers as Dieter, the obnoxious host of a fictitious German television show. Dressed in tight black spandex and faux-existentialist turtleneck sweater underneath slicked-back hair, Dieter insulted his guests, expressed

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immediate boredom at anything that did not satisfy his sado-eccentric preferences, and abruptly ended each interview with a jerky techno dance that recalled the spasms of an electrocuted puppet. One of the show's most memorable segments was 'Germany's Most Disturbing Home Videos', a collection of black and white clips featuring a fat man in diapers cavorting around a sprinkler, the face of a dead vagrant covered by ants, one man kicking another in the testicles, and other uplifting fare. Submitted by 'ordinary Germans' like Dieter, the clips had the look of frat house pranks directed by Ingmar Bergman in his bleakest period. The blond beast is no longer what it used to be: rather than embodying a predatory will to power unsoiled by Judaeo-Christian resentment protocols, 'German' has come to stand for a weird mix of petty cruelty, sophomoric nihilism, and over-the-top artsy embarrassment.

Drawing on a rich legacy of clichés about Germany and the Germans, Sprockets spoofed two targets in particular: the German art world of the 1980s with its neo-minimalist, hyper-expressionist histrionics, and the robo-cool techno decor of the contemporaneous German music scene. Not coincidentally, Sprockets' signature theme was a sped-up excerpt from the title track of Kraftwerk's 1986 album *Electric Café*. Kraftwerk, musically seasoned readers will recall, was the most important electronic band to emerge in Germany in the 1970s; more than any other it came to epitomize what is known as *Krautrock*. The term has its own history. First used by British DJs as a derogatory label for any popular music made in Germany (and therefore of inferior quality), it later acquired a more specific and positive meaning by referring to a distinctly German contribution to the musical explosions of the last four decades. Ranging from the psych-folk and space rock of Amon Düül or Ash Ra Temple to the minimalist groove of Kraftwerk and Can and the avant-garde soundscapes of Faust, *Krautrock*'s most striking feature was a juxtaposition of two elements: a tendency towards esoteric depth, be it the astro-pychedelic sound trips of Tangerine Dream, the consciousness-expanding mystic monotony of Ash Ra Temple, or Faust's rigorous denial of anything that smacks of popular music; and a commitment, if not a surrender, to technology, as embodied by Kraftwerk's synthesizer fetish and their attempt to musically recreate a thoroughly technologized environment.

You do not need a degree in German Cultural Studies to recognize this as another instance of the well-known ambiguity that informs the perception of Germany. Germany is *das Land der Dichter und Denker*, the land of poets and philosophers with their reputation for profundity and occasionally nebulous complexity – the intimidating realm of Hegel, Thomas Mann and Stockhausen (the latter, incidentally, of pivotal importance for *Krautrock*). But it is also the land of engineers and technicians with their no less established reputation for efficiency, reliability and near-fanatical dedication to machines – the land of Mercedes, Zeiss optics, and VHF-equipped blitzkrieg tacticians. And precisely this mix of high theory and high tech, Hegel and Mercedes, Goethe and Guderian, appears to be at work both in the theory and the anglophone reception of Friedrich Kittler.

To be sure, Kittler's success in the English-speaking world cannot be reduced to such clichés, but you cannot ignore them either. Just as his anglophone reception is, in terms of sites and media, as much a matter of blogs and chatrooms as it is of seminars, lectures and journal specials, his anglophone construction is a mix of sober, detailed engagements

on the one hand and self-interested truncations and hackneyed constructions on the other. The obvious temptation is to conjure up the former to explain the latter: Kittler's reception is such a checkered affair because so much of it takes place beyond the control of academic gatekeepers. This is nonsense (and hence to be found in scholarly journals). If there is anything to learn from the next couple of pages it is that truncations and projections, facile rejections and partisan appropriations, are a core ingredient of Kittler's academic reception. No doubt his provocations and Dieter-like dismissals of alternate approaches ('Your story has become tiresome') are in part to blame. Kittler is himself partly responsible for the fact that he has become what in Harry Potter's world is known as a boggart: a protean creature that invariably assumes the shape of whatever observers fear most. And since there is a lot to fear in Kittler he has acquired an impressive litany of labels: techno-determinist, anti-humanist, reactionary modernist, military fetishist, disgruntled literary scholar suffering from a strong case of physics envy, Eurocentric Heideggerian clone, and so on. And in some cases there is, both at home and abroad, a mix of acknowledgement and exasperation reminiscent of the attitude many have toward Ernest Hemingway (or Marshall McLuhan): yes, something like this had to be said and done, somebody had to write like this, but did it have to be *him*?

Given these difficulties, the following remarks will offer neither a comprehensive nor an impartial account of Kittler's anglophone reception. I will concentrate primarily on appropriations and apotropaic gestures that characterize(d) the treatment of Kittler in literary scholarship as well as in theory-inspired media and posthuman studies in the United States.[1] While I believe that the ideas presented here can be applied to the reception of Kittler in other domains of the anglosphere, I do not claim to provide an objective account. Biases will show. Furthermore, I will argue that factual developments have to be seen in the light of aborted alternatives. In order to understand what happened to Kittler it is helpful to briefly discuss what could have happened but did not.

II. Sharks, whales, dolphins: An almost biological history of American German Studies

For well over a decade Kittler's anglophone reception was an almost exclusively American affair. Of the first three books translated into English, two – *Discourse Networks* and *Gramophone, Film, Typewriter* – were issued by US publishers while the third, the collection *Literature, Media, Information Systems*, was edited and translated by American scholars. According to the bibliography in the Kittler *Festschrift FAKtisch*, prior to 2005 virtually all the papers translated into English appeared in North American journals or collections (Berz et al. 2003: 359–74). The last five years, however, have witnessed a marked trans-Atlantic extension. In 2006 the British journal *Theory, Culture & Society* published the world's first Kittler special; the first conference dedicated to him took place in the Tate in 2008; and the latest book to be translated, *Optical Media*, was issued by Polity, a UK publisher also responsible for the first book-length introduction to Kittler in English (Winthrop-Young 2011).

Given the notoriously blocked communication channels between Britain and Germany in matters of cultural theory – as exemplified by the long-standing animosity between the two countries' most important theory exports, Birmingham's Cultural

Studies and Frankfurt's Critical Theory – Kittler's cross-channel incursion is no small feat. One noteworthy aspect of the recent British reception is the conspicuous presence of young – in academic terms, very young – scholars. Born in the 1970s and part of a new generation, they have never known a 'time *before theory*' (Hall and Birchall 2006: 2), but unlike many of their teachers they are less inclined to cling to established alliances and ideological fault lines. (The same, incidentally, can be said about the most recent engagement with Kittler by North American scholars, including young Germanists.) However, it is not always clear whether recent British engagements are dealing with a 'German' Kittler or one pre-processed by his American reception. Sometimes the circuitous routes of contemporary theory recall the triangular arrangements of the old slave trade. We must, therefore, focus on Kittler's US reception, though in order to understand those who engaged with him it will be necessary to first deal with those who should have done so but did *not*.

Disciplines, like individuals, have stories they live by; and, like individuals, they prefer self-serving narratives over self-critical ones. My discipline – German Studies as it has evolved in North America – is no exception. For a long time we saw ourselves as an offshoot to German *Germanistik*. We were sidekicks – earnest, loyal, less impressively costumed – to the superheroes residing in Berlin, Munich, or Heidelberg. There is a lot of evidence to support this self-denigrating tale. Didn't the pronounced humanism of immediate post-war North American scholarship and its conservative turn in the 1950s mimic contemporaneous developments in Germany? Wasn't the move toward the political left in the late 1960s initiated in Germany and then imposed on us by incoming scholars? Indeed, hasn't our work been determined by successive waves of emigrants who on at least three occasions – around 1933, after 1945 and then again in the late 1960s and early 1970s – realigned the disciplinary outposts with developments in the mother country? Germany had little luck with colonies after 1918, but its intellectual colonies continued to prosper.

But then, so the story goes, a great break occurred in the 1980s. It was preceded by internal muttering which pitted US-born and educated Germanists against those among their German-born and educated colleagues who may have physically crossed the Atlantic, but whose astral bodies remained in Germany and who failed to realize that more than mere language and location separates talking about Goethe in Cologne from talking about Goethe in Cleveland. The discipline slowly came to realize that it is a different ballpark rather than just a different ballgame, and that the rules had to change accordingly. Increasingly, US Germanists took their cues from neighbouring disciplines and departments rather than from across the Atlantic. Indeed, for the first time the trans-Atlantic flow reversed direction and an array of paradigms and approaches was communicated back through the umbilical cord: feminism, gender studies, gay studies, (post-)colonial studies, new historicism, and so on. This is more than independence, it borders on reverse colonization.

It is a good yarn, a tale of adolescence and rebellion that comes with a whiff of 1776 and culminates in a second Marshall Plan. In a thought-provoking analysis the US Germanist Peter Hohendahl has questioned its first part. While he does not doubt the influence of US theory production on German academia during the last two decades, he challenges the received wisdom that it was preceded by a German hegemony over US German Studies. Similarities, Hohendahl argues, can be deceiving. What was

primarily attributed to theoretical influence and personnel influx is more likely to be the result of very different institutional and discursive practices producing deceptively similar results. To use biological terms, Hohendahl turns homologies into analogies. Even when they appeared to be behaving in near-identical fashion, German *Germanisten* and US Germanists were not like whales and dolphins (closely related, the former just a bit bigger), they were more like sharks and dolphins (similar appearance despite radically different background, and not to be mistaken for each other). The great break of the 1980s which replaced 'harmonious cooperation' with 'pronounced distance' (Hohendahl 2000: 357) was less an uprising against German disciplinary oppression than a new awareness of a pre-existing difference. In short, we *Auslandsgermanisten* were never that German to begin with.[2]

To grasp the implications for Kittler's reception we need to focus on Hohendahl's analysis of the political and ideological infighting that occurred just before Kittler came to America (see Hohendahl 2000: 363ff.). Whether you attribute the leftward shift of US German Studies to the arrival of Frankfurt-inspired Germanists or to the influence of the native New Left, it did exacerbate the rift between progressive scholars and those less willing to soil the study of literature with social approaches, especially if rooted in (neo)-Marxist paradigms. But then a third player entered who was so inimical to both combatants that they forgot their differences and entered into a tactical alliance, as it were, to ward off the common enemy: poststructuralism. Its rise to prominence in North America (and, more specifically, the ascendancy of deconstruction in literature departments) has been chronicled in great detail; and while the verdict is still out on how much that American product called 'French theory' had to do with what originally appeared in France, one thing is clear: German departments had little to contribute. Notwithstanding exceptions like Werner Hamacher or Samuel Weber, the majority of German scholars both in the US and in Canada remained either indifferent or hostile. And this once again appears to resemble the situation in Germany. Just as North American German scholars were less willing to admit Derrida, Foucault and Lacan than their colleagues in English and Comparative Literature, poststructuralism received a far more chilly welcome in Germany than in the United States.

How did this impact the reception of Kittler who, after all, started out as a literary scholar determined to import Foucault and Lacan across the Rhine? He had two strikes against him. First, his arrival coincided with the growing distance that separated US German Studies from Germany. His fate equals that of Niklas Luhmann: at exactly the moment when German theorists once again became interesting, Germanists abroad started to be less interested in German theories. Second, much of what came to dominate US German Studies in the 1990s – questions of identity, minority, gender, affect, trauma, memory; the Holocaust; the demise of the GDR; the globalization of the Germanies – was of little concern to Kittler, and much of what came to dominate his work – technology, media, war, symbolic machines, the nefarious spell of software – was of little concern to many North American Germanists. Technophobia is encoded in the DNA of virtually all literary studies, but probably more so in *Germanistik* than in many others.

As a result the first and formative phase of Kittler's North American reception took place outside of German Studies. It was carried out by Americanists like John Johnston, Joseph Tabbi, Bruce Clarke, Mark Seltzer, and Michael Wutz, many of

whom were 20th-century experts specializing in the cross-relationships between literature, media and culture. Kittler, in many ways a quintessentially German theorist, became an important resource for the study of non-German modernist and postmodernist literature. The result was a conspicuous truncation that persists until today: the Kittler that emerged in North America is the Kittler of *Gramophone, Film, Typewriter* and the second part of *Discourse Networks*. Much of the earlier work – the Lacanian dissertation on Conrad Ferdinand Meyer, the study of Hebbel, the work on Goethe's *Wilhelm Meister*, the important essays on Schiller's *Don Carlos* and Hoffmann's 'Sand Man' – remains unknown.

In hindsight, Kittler's first large-scale deployment as a theorist in the anglosphere was part of the trend toward technologically informed and theoretically updated inter-medial case studies that gathered steam in the 1990s and which centered on texts published between 1850 and 1950. Over time these early engagements have been followed by book-length contributions that continue to use Kittler as a point of departure (e.g. Harris, Wutz). Indebtedness, however, should not be mistaken for imitation. There is a discernible tendency among American scholars to accept the premises and details of Kittler's analyses while rejecting many of his strident evaluations, such as the pronouncement that in post-Edisonian times literature is reduced to either withdrawing into esoteric formalism or delivering film scripts. As Wutz – himself a seasoned Kittler translator – has recently demonstrated, literary texts in analog and digital media ecologies are a great deal more flexible, resourceful and enduring than the second part of *Discourse Networks* allows them to be (Wutz 2009). If you know Kittler well, you can work with him against him.

III. Sighs and challenges: Missed opportunities

But North American Germanists did not summarily ignore Kittler. Reviews were published – some positive, others lengthy. In fact, at the very beginning of Kittler's anglophone reception stand two interventions by prominent US Germanists that deserve closer inspection. Robert Holub offered a concise account of Kittler as part of one of the first attempts to describe to an anglophone audience the German reception of poststructuralism (Holub 1992: 95–107). Holub is not – and never claimed to be – a disinterested observer of the French theory import. His approach resembles that of Manfred Frank: to combine 'the philosophical sophistication of neostructuralism with an ethically and politically responsible hermeneutic position' (Holub 1992: 96). Kittler appears to be lacking the latter:

> Unlike Frank, whose political criticism emanates from the insistence on an individual non-determination that escapes structuration, Kittler is able to muster only a helpless and cynical political gesture. Thus we may admire his voluminous scholarship, his intuitive insights, and his stylistic bravado; and we may even want to affirm that his work has been a high point of the German appropriation of poststructuralism. But I suspect that while postmodern readers are emitting spirited sighs of exhilaration and admiration, the 'ach' uttered by those still adhering to political agendas will ultimately be one of exasperation and frustration. (Holub 1992: 107)

At first glance this us-versus-them diagnosis is itself cause for exasperation. Of course Kittler, too, has a political 'agenda', it's just not Holub's. And the strained praise ('we may even want to affirm') that Kittler presents a 'high point' loses some of its allure in light of the fact that Holub is not only providing an account of how poststructuralism fared in Germany but also how it *could have fared* had Peter Szondi still been around to act as mediator (Holub 1992: 74–83). The 'high point' turns out to be a rather modest elevation given that it could have been so much higher. But looking back it is Holub's own attempt at mediation that deserves a subjunctive lament, for it demonstrates that despite all ideological and political differences stimulating engagements with Kittler could have taken place – if others in the profession had followed his lead. But they did not.

The second intervention is David Wellbery's foreword to *Discourse Networks*, which remains the most important, if not the most elegant, text on Kittler in English (or any other language). But 20 years later two features stand out that most early readers tended to overlook. First, Wellbery knows that he is introducing a poststructuralist theorist to an audience steeped in poststructuralism. It sounds like a promising match, but Wellbery nips the romance in the bud by emphasizing that Kittler's poststructuralism is decidedly *not* that of his audience:

> [E]ven where the instruments and strategies of post-structuralist thought have been enthusiastically adopted, they have often served as modish disguise. Thus the reception and broad dissemination of Derrida in the United States has taken shape as a blending of New-Critical immanent interpretation, on the one hand, with a negative theology of the literary work in which texts figure as the hopefully hopeless allegory of their own failure, on the other. The difficult term *deconstruction* has become a laxly used synonym for negative critique. Information, according to Gregory Bateson's definition, is a difference that makes a difference. By consigning post-structuralism to the realm of fashion, American literary criticism has systematically refused to be informed. … American criticism has avoided the experience of post-structuralism, in Hegel's sense of experience as a transformative sufferance in which not only consciousness changes, but also its objects and criteria of truth. For this reason, the publication of Friedrich Kittler's book *Discourse Networks* is particularly propitious. (Wellbery 1990: viii)

Translated into B-film discourse: 'You want poststructuralism? You think you know what it is? Here, let me show you the *real* thing.' Wellbery is not only castigating the once popular tactic of warding off poststructuralism by dismissing it as mere fashion, he is also targeting the influential early stage of the North American reception of poststructuralism, in the course of which a lot of what in France had originated in the domains of social theory, anthropology, philosophy and social theory, was squeezed through the bottleneck of literary studies. This constrained refunctionalization worked so well because regardless of all the obvious differences Derrida's formidable toolbox turned out to be pretty compatible with many of the critical procedures of New Criticism. There is a perception, occasionally offered behind closed doors and between Kittler's lines, that precisely because the German reception of so-called French theory was fraught with such hardship. it resulted in something more radical than what arose in the more welcoming circuits of American literature departments. As Jane Fonda and Arnold Toynbee put it: No pain, no gain – only if there is a real challenge will there be a hardy and vigorous response.

Second, Wellbery directs an implicit challenge back to the German reception of Kittler. In marked contrast to Holub he emphasizes that Kittler's enterprise is not without bonds of solidarity and ethical reason:

> The victims who people Kittler's book – the Bettinas, Günderodes, the Nietzsches, the Schrebers – speak the truth of the culture they suffer. Whoever would look for the bonds of solidarity that orient Kittler's investigation will find them here: in its unmistakable compassion for the pathos of the body in pain. Hermeneutics would appropriate this corporeal singularity in the construction of a meaning. Post-hermeneutic criticism, however, draws its responsibility precisely from the unassimilable otherness of the singular and mortal body. This is the ethical reason it stops making sense. (Wellbery 1990: xv)

Preposterous, surely. When did Kittler morph into Elaine Scarry? He has repeatedly trounced theory's sentimental fetish of the body, and now we are to believe that he is ruled by compassion for 'the sufferance of the body, its essential pathos' (1990: xv)? You might as well paint a blowhole on the back of shark, affix a paper mache snout and try to sell it off as a friendly dolphin. But this misses out on Wellbery's underlying point that some of the more subtle and crucial aspects of *Discourse Networks* which remained unappreciated in Germany could receive a more informed welcome in North America. Wellbery, in short, was voicing a challenge and a hope. His diagnosis that the American appropriation of poststructuralism has not yet experienced a 'transformative sufferance' (1990: viii) challenges his readers to learn something from the more rigorous German reception, while his second point is fuelled by the aspiration that American academics will be better able to understand Kittler because they are familiar with a discourse the Germans have yet to fully discover – such as the discursive, historically contingent construction of gender (with all the performativity it entails) or the medial blurring of body/technology boundaries. The challenge has yet to be met and the hope has yet to be realized.

It is difficult, then, to avoid the conclusion that despite the promising opening moves the discipline failed to engage with Kittler, and that the failure was due primarily to ignorance and prejudice. This, however, is unfair, especially if based on an unacknowledged contradiction that permeates the discussion to this day. On the one hand many clamour that the various outlets of German Studies have to recenter themselves in accordance with the cultural and educational needs and profiles of the countries they happen to be located in; on the other hand many – and sometimes the very same – demand that the various centers of *Auslandsgermanistik* are missing out on the most recent German theory production. This, clearly, is a double bind. You cannot at one and the same time criticize *Auslandsgermanisten* for being out of touch with what is going on in Germany (or the US) *and* for not developing a study program that takes into account the particular needs of their home country. Maybe the neglect of Kittler was part of the price we had to pay to gain our independence.[3]

IV. 'German media theory' and the challenges of posthumanism

Intermedial case studies were Kittler's major entry point into Anglophone academia. His reception was part of an underlying shift within the humanities that found its institutional expression in the creation of electronic writing centers, media studies departments, and

digital humanities initiatives, most of which coexist uneasily with established media and communications programs. However, the more Kittler is referenced in this process, the more he is de-literaricized into a media theorist (it would not be the first time that institutional changes rewrite scholarly biographies). This is an ongoing process that cannot be contained in a neat story, but several features are worth mentioning; and none is more interesting or revealing than Kittler's somewhat iffy maverick status in the current post-humanist discussion.

Let us start with two preliminary observations. First, in his media-theoretical anglophone reception Kittler tends to be either a prefatorial theorist – he pops up in introductions, prologues and forewords, primarily in the context of larger theoretical clarifications, but then all but disappears from the text – or is confined to Area 51 chapters: that is, to well-demarcated textual compounds designed to isolate secret or harmful subject matter. In both cases Kittler ends up in solitary confinement; one of the few fellow inmates he is allowed to socialize with is, not surprisingly, the alleged master technodeterminist McLuhan. Much like McLuhan, Kittler is frequently featured in media-theoretical discussions and handbooks as an unrepentant technodeterminist, which, as we know, is something deeply suspect, if not morally depraved. Kittler's most infamous one-liner, '[m]edia determine our situation' (1999a: xxxix), seems to have determined *his* situation in the anglosphere.

Second, to the dismay of many German media theorists (some of whom have choice words for his contributions), Kittler's work has come to stand for 'German media theory'. The term's career resembles that of *Krautrock*: it has risen from generic label to acclaimed brand name. In 1999 *New German Critique*, the most important anglophone Germany theory journal, published a special on 'German media studies'. At that time the title referred – simply, innocently and ecumenically – to any kind of media theory produced in German-speaking countries. Kittler himself was not part of the collection, though the editor described him as a morose Gutenbergian whose 'gloomy rantings' amount to a 'lament over the displacement of the written word' (Geisler 1999: 83). Eight years later *Grey Room* issued a special dedicated to 'New German media theory', in which Kittler appears as the founding figure of the type of media analysis that informs all six contributions. 'German media theory', then, uncannily resembles the 'Canadian School' of McLuhan and Innis. In both cases the production of a couple of outsiders is regarded primarily by outside observers as a nationally emblematic approach; and in both cases observers discern a strong dose of technodeterminism.

How did this shift come about? To my knowledge, the first outside observer to recommend 'German media theory' to non-German audiences – or at least, the first to do so with any success – was Geert Lovink. (If reception histories, which make for tedious narratives at best, had heroes, Lovink would be ours; his work, rooted in social activism and net critique, and a great deal closer to hacking than to Heidegger, shows how well someone from a very different part of town can engage Kittler.) Lovink claimed that in the 1980s a vibrant, globally unique media theory production had evolved in the German-speaking countries. Of course there was media theory in the Germanies before that, but what Lovink had in mind was a new stage of intellectual production in which media studies had come under the influence of new bodies of theory. The three main influences were poststructuralism, systems theory and cognitivism (frequently associated in

short-hand manner with the names Kittler, Luhmann and Siegfried Schmidt, respectively). But while the former paradigm was firmly ensconced in North American literary and related media studies, the latter two were marginal players.

This explains the step-by-step truncation that shapes the observer construct 'German media theory'. First, it is reduced from generic label to a more restricted designation referring to a certain theoretically informed intellectual output. Second, of the three principal influences the two with limited connectivity in the anglosphere are sidelined and we arrive at commodity with an undeniable trans-Atlantic export potential: poststructuralist media theory. Third, since Kittler is the only such theorist of note to have been widely translated, his name comes to stand for this particular theoretical orientation.

But then there was a fourth step, a truncation *within* poststructuralism. Wellbery's divide between an authentic posthermeneutic approach that had truly 'suffered' through poststructuralism and the pseudo-posthermeneutic American variant can also be applied to theoretically informed media studies. It is worth recalling that Kittler's name was far more present in the aforementioned intermedial scholarship than in one of the hottest topics of the early 1990s, the hypertext debate. Why this low profile? To answer in name-dropping shorthand, with regard to its French ancestry the US hypertext scholarship of the 1990s descended from Barthes and Derrida while Kittler came from Foucault and Lacan. From Kittler's vantage point, that is, from the point of view of an a-human history of discursive regimes in which technological and/or symbolic machines inscribe orders of speech into a psychic apparatus that, ultimately, is nothing but an intracranial assembly of communication and storage devices, the work of scholars like George Landow and Greg Ulmer must appear somewhat naive, optimistic, liberal, and user-centered, if not humanist. Despite claims to the contrary, it retains many of the concepts that the harsher variants of poststructuralism aimed to eviscerate: authorship, oeuvre, creativity, artistic freedom, and even the very American redemption of theory through technology (see Winthrop-Young 2006: 96). To denounce Kittler as a technodeterminist, then, is not only the understandable reaction to his provocative rhetoric, it is also an attempt to cover up one one's own bias by exposing that of another.

However, matters have become more complex with the subsequent deployment of Kittler in the debates surrounding posthumanism. This is a vast topic best approached via a quick detour through a back door: Kittler's treatment of Foucault. Holub had already criticized German poststructuralism's penchant for 'focusing too obdurately on the early Foucault' (1992: 68). Especially in Kittler's writings the later, ethical, almost Kant-like Foucault – the one even Jürgen Habermas came to appreciate – is downgraded in favour of the earlier, implacably cool anti-humanist who reduced man to a fleeting concept arising from the epistemic interplay between *les mots et les choses*. Ever since Wellbery provided the first explanation, Kittler's grounding and media-technological recasting of Foucauldian epistemes has become a staple in his anglophone reception. What is missing, however, is the ambiguous treatment of Foucault that is on display in Kittler's more recent texts.

On the one hand, Kittler is pushing Foucault back into Heidegger. Ultimately, Kittler argues, Foucault was practising Heideggerian *Seinsgeschichte* by revealing the discursive rules involved in determining the historical character of the relationship between man and being. On the other hand, Kittler is pushing Foucault forward into Shannon. As

Kittler would have it, Foucauldian discourse analysis was closing in on the mathematical theory of communication in as far as it located the validity and meaning of utterances in the formal rules governing the relationship between that which is said and that which could have been said. Foucault is Shannon *avant le nombre*. His shorter texts 'set sail from the solid shores of his libraries out into the open sea of media technologies, until Wiener's and Shannon's mathematical concept of information appeared on the horizon' (Kittler 1999b: 8). Like Moses, Foucault never reached the promised land – so it falls to Kittler to haul him ashore on the other side.

However, underlying Kittler's most recent work, including the large-scale excursions into Greek and Roman antiquity, is the attempt to close the gap between Heidegger and mathematics, which directly affects the status of Foucault, if not of poststructuralism itself. The more Kittler insists that the late Heidegger had already worked his way towards thinking the computer (and with that, the end of philosophy), the more intermediaries like poststructuralism in general and Foucault in particular lose in stature (see Winthrop-Young 2011: 117). Wellbery's challenge can be extended: it is not only that the poststructuralism that flourished on Western shores may not have been the real thing, the whole notion of poststructuralism needs to be questioned because maybe there never was such a thing to begin with.

This puts Kittler on a confrontation course with anglophone posthumanism which, to a considerable extent, is informed by both media theory and poststructuralist imports. What are the main difficulties? First, there is a tendency among some anglophone posthumanist theorists – Neal Badmington comes to mind – to locate their continental theory sources primarily, if not exclusively, in France. The prominence of Derrida in particular in posthumanist theory means that Kittler once again is on fairly inhospitable ground. If – under the influence of Derrida, and mediated by Cary Wolfe and others – the posthumanist debate has shifted from early euphoric or dystopian claims that humans have been turned into (or pushed aside by) something posthuman, to the more nuanced commitment to see posthumanism as a rigorous self-questioning and questioning of boundaries that defines the human while strictly avoiding gestures of trangression or exteriorization, then Kittler with his human obsolescence scenarios and 'presupposition of exteriority' (Wellbery) must – once again and on an even grander scale – appear as a techno-ontological determinist.

The second difficulty is related to the fact that Kittler shows little interest in two aspects of great importance to North American posthumanism: animals and evolution. In Derridian parlance, Kittler has yet to fully attend to the question of the animal. To be sure, the immediate response is to dismiss this objection as gratuitous and irrelevant. Not everybody can talk about everything; and to ask that Kittler deal with the animal is to demand that an apple talk like an orange. Let us postpone the objection for a moment and focus on the question of evolution. One of the most decisive moves in posthumanism has been to deconstruct the ideologically burdened man/technology divide and replace it with the ongoing co-evolution of humans and technology. There is no clear point of human origin, there never was a pristine early human subject that at one point in time adopted, devised or exteriorized tools, instead there is 'a relation between *bios* and *tekhne* so complex and so historic that any presumption of the priority of one over the other can only be sustained by means of an appeal to a metaphysics of creation' (Wills

2008: 5). Humans and their alleged tools from choppers to chips are always already caught in an ongoing feedback loop. Ironically, some of the key theorists behind the North American discussion (from André Leroi-Gourhan to Bernard Stiegler) hail from France; and once again North American Germanists are left to ponder why the corresponding German tradition (from Ernst Kapp to Peter Sloterdijk) has such a low profile abroad.

In any case, Kittler does not fit in well. This is less a result of his avowed preference for hardware and hard abstractions, i.e. physics and mathematics, over 'soft' biological theories than an effect of his Heideggerian inheritance. To be sure, judging by his recent Aphrodite-inspired *Musik und Mathematik* volumes, Kittler has become the Theorist Who Came in from the Cold; he appears to have mellowed and become more interested in love than in war, but his proclivity for ruptures – be it the clash of his own 'discourse networks', the epistemic breaks of Foucault, or the epochs of Heideggerian *Seinsgeschichte* – remains at odds with the basic dynamics of evolution, Darwinian or otherwise. More importantly, in recent years Kittler has adopted an increasingly explicit Heideggerian stance by emphasizing that the proper focus of *Denken* or 'thinking' (as opposed to mere philosophy) has to be an updated revelation of the ways in which man relates to Being – more precisely, of how we can return to or reconnect with the musico-mathematical ways it was performed in antiquity before it was destroyed by Athenian philosophers and their hapless Roman translators. From this point of view even the most subtle posthumanist deconstruction of man ultimately remains an anthropocentric enterprise. Kittler's position toward current posthumanism resembles that of Heidegger toward the German Philosophical Anthropology of the 1920s. Building in particular on the work of Jakob von Uexküll, Heidegger argued that the traditional criteria that served to demarcate humans from animals were mired in anthropocentric metaphysics, but he then proceeded to argue that what characterizes man, and man alone, is the potential for openness in the relationship to Being. From the point of view of theoretically supercharged posthumanist discourse, this attitude reveals a heavy dose of unacknowledged speciesism. The same would apply to Kittler.

Intermedial literary analyses, media theory proper, technologically informed posthumanism: throughout the most important deployments in anglophone academia Kittler remains a theorist who is acknowledged rather than approached. He resembles the dragons on the margins of medieval maps – you need to know where they are because you cannot go beyond them without falling off the edge of the sane world. With the exception of McLuhan no theorist has been credited more with advancing the claim 'that media form the infrastructural basis, the quasi-transcendental condition, for experience and understanding' (Hansen and Mitchell 2010: viii); but with the exception of McLuhan no theorist has been so frequently – and erroneously – charged with saying *only* that and nothing more. Sometimes the prophet receives the same honors abroad as in his home country. Despite all necessary truncations and amputations the Kittler of the anglosphere is not unlike the German Kittler: both have been turned into the grand bogeyman of technological determinism. Kittler, the boggart who embodies whatever theorists fear most, has played the role well and with dramatically increasing scope: first, materialities of communication determine literary texts; then, data-processing networks determine entire epochs a.k.a. 'discourse networks'; and finally, the evolution of technology shapes, uses

and discards man. To a considerable extent Kittler has himself to blame or thank for this awkward location at the extreme or extremist margin; but if running our head against the wall helps us find the exit we are looking for, then we do owe the wall a measure of gratitude.

Notes

1. Among the many omissions I am guilty of the most egregious is John Peters, who almost alone among US communication scholars has championed Kittler's work as an instructive antidote to the blind spots of his home discipline (further see Peters 2008). In many ways Peters offers a diametrically opposed positive spin on the numerous apotropaic gestures under discussion here.
2. It is worth recalling that the term *Auslandsdeutsche* ('Germans abroad') entered German political discourse in the second half of the 19th century with a discernible bias (further see Naranch 2005). Competing with the more neutral *Auswanderer* ('emigrants'), it was tied to the perception that Germans, regrettably, were more prone to abandon their cultural heritage than other emigrants. An *Auslandsdeutscher* was not simply a German who had moved abroad but one who defied the pressures and temptations of assimilation and remained true to his roots. By the same token the quasi-colonial term *Auslandsgermanisten* contains the expectation that Germanists abroad should continue to focus on what is of importance to their colleagues back home at the center of the discipline. As is well known, when these expectations were no longer met certain sections of the homegrown *Germanistik* responded with a slew of approaches that displayed a new-found respect for the voice of the subaltern abroad. Reacting with the panicky tolerance of late Habsburg bureaucrats, they tried to keep the tottering empire in business by making all kinds of concessions to non-German minorities. The most entertaining variant was so-called *interkulturelle Hermeneutik*. Its lead slogan *Selbstverstehen durch Fremdverstehen* indicates that German Germanists could overcome their blind spots and improve their understanding of Germany in general or Goethe and Grass in particular if they fully engaged with what folks in Kyoto, Kinshasa or Kalamazoo were saying about Germany, Goethe and Grass. This was, no doubt, a well-meant attempt to treat the other as equal (and profitable in as far as it could be used to increase export). It was also slightly narcissistic – a bit like the old joke of the vain guy who invites his date out for dinner, talks about himself for three hours, and then says: 'But enough about me. Let's talk about you. What do *you* think about *me*?'
3. Much of this can already be found in Arnd Bohm's highly critical (and highly recommended) account of the 'Anachronisms in Canadian *Germanistik*' (Bohm 1993). 'Anachronisms' here refers to the discipline's partial backwardness. After delineating the basic reasons for the sorry state of affairs (most importantly, Canadian demographics, a university system that for a long time was based on English undergraduate teaching universities rather than on the German graduate research paradigm, and, most importantly, the triple dependence of Canadian German Studies on Britain, the United States, and Germany itself), Bohm illustrates the unwillingness of the discipline to engage new theories with the non-presence, among others, of Kittler (1993: 62). Indeed, the first time Kittler ever became the subject of a talk at a Germanists' conference in the land of Innis and McLuhan was in 1998. However, to avoid misunderstandings: Bohm's paper was written almost two decades ago, which in the dog years of theory is a considerable

amount of time. Bohm would be the first to agree that while the institutional setting of Canadian *Germanistik* may have deteriorated, intellectually it has changed for the better. It may not be as Canadian as it should be but it can no longer be charged with lagging behind Germany or the United States.

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Biographical note

Geoffrey Winthrop-Young is Professor of German at the University of British Columbia (Vancouver). His major research interests include German theories of media and cultural techniques, concepts of social formation and evolution drawn from biology, and science fiction. Among his most recent publications are *Kittler and the Media* (2011) and the afterword to the new translation of Jakob von Uexküll's *Foray into the Worlds of Animals and Humans* (2010). He is the co-translator (with Michael Wutz) of Friedrich Kittler's *Grammophone, Film, Typewriter* (1999) and the translator of Cornelia Vismann's *Files: Law and Media Technology* (2008). He is currently working on a study entitled *Media, Systems, Cultural Techniques: Encounters with German Posthumanism.*

Thesis Eleven
107(1) 21–32

DOI: 10.1177/0725513611418037
the.sagepub.com

On collegiality: Kittler models Derrida

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Abstract
Kittler was among the first to invite Derrida to lectures in Germany, and to translate Derrida's texts into German. Yet a cursory tally in his references does not always do justice to what Kittler's media theory owes to deconstruction. *Discourse Networks* credits Derrida with a mere 'rediscovery' of grammatology, although Wellbery's foreword labors mightily to identify the deconstructive traits in Kittler's work. *Gramophone, Film, Typewriter* reduces *The Post Card*'s complex networks to an allegation that 'voice remains the other of typescripts' – as if Kittler had not in fact taken a much more subtle evaluation of hearing oneself speak from Derrida. What happens to the writability and citability of texts if they are sorted into such neat binary distinctions of logical or poetic orientation? What, to Kittler, is the quotability and readability of the body of work titled Derrida?

Keywords
Jacques Derrida, didactics, Friedrich Kittler, model, theory

> A proposition, a picture, or a model is, in the negative sense, like a solid body that restricts the freedom of movement of others, and in the positive sense, like a space bounded by solid substance in which there is room for a body. (Wittgenstein, *Tractatus Logico-Philosophicus* (1921): 4.463)

What could one learn from Kittler? What would he teach? Just what is it, if anything, that makes his work so different, so appealing? These questions are doubly complicated by the fact that Kittler professes, on the one hand, that 'it is and has been my belief that my work is not concerned with interpretation because it is not me who is

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speaking or writing but the texts themselves'. On the other hand, in the same interview, he also confesses that

> my work in literary criticism was not only a pretext but also a historical necessity which, all the same, permitted me to talk about German poets whilst saying things I wanted to state in my own name but did not dare to articulate. You may ask why it was so difficult to say things in my own name. Well, apart from the fact that I am a shy person, it was very hard during that time in Germany to move beyond the study of dialectics and the self's relation to itself. (Armitage 2006: 18)

This redoubled *captatio benevolentiae* notwithstanding, neither being shy nor feeling hemmed in by intellectual convention seems to have prevented Kittler's academic success.[1] There is no doubt that within German academia, beyond the boundaries of disciplines (be they capitalized and institutionalized as Literature, German Studies, Media Theory, Aesthetics, or Cultural History), Kittler's work has been, as they say, 'schulbildend': which is to say, (re)formative in that there is now an extending ripple of scholarship associated with what Friedrich Adolf Kittler first modeled.[2] This obtains not only for German-speaking academia and its exports, but increasingly also for other academic spheres where media studies and the history of cultural technology are focal points in higher education and research (see Winthrop-Young 2010, especially his concluding comments or 'final checklist').

By the same token, it remains true that while key publications by Kittler have been translated, much more remains accessible only to those proficient in German; and it remains to be demonstrated what the institutional success of discourse analysis and media theory in a German mold or mode, in turn, owes to import – including translations of Derridean thought, in a complex cross-border fellowship (compare Peters 2008 and Geoffrey Winthrop-Young 2006), to a degree perhaps unremarked in the Anglo-American reception of poststructuralist and other contemporary thought bottled and sold as 'French Theory'. In order to get a concise overview of what those lessons were, there are worse starting places than Kittler's little known but useful essay on didactics and international influences in the humanities – namely his contribution to a yearbook of German didactics under the title 'Derrida's Didaktik' (Kittler 1989). Characteristically, it is a Kittler text that purports to let someone else's writing address the issue, in order to express what Kittler himself might claim to have been too shy and too professionally constrained to say directly.

Dating to the supposed end of the Cold War in the year 1989, this piece observes one of the maxims of Kittlerian media history – that war is the father of invention – but in this specific case, the focus is on veterans of the Culture Wars. Kittler opens and closes with quotations from Derrida referring to the North American debates over whether or not the theoretical humanities, and particularly literary Theory with a capital T, are to blame for what cultural conservatives like William Bennett deplored and attacked as the decline of the humanities or even of humanity as a whole: since teaching that there are no texts means that there are no great texts, which means there are no reasons to read.[3]

Yet Kittler hastens to add right away that what is under attack in the humanities is surely not text or reading, but the institution that stores, processes, and transmits in these

and other ways: the university itself – and so Kittler delivers 'the good news that poststructuralists not only read, but also teach'. Note that Kittler in 'Derrida's Didaktik' does not distinguish, explicitly or implicitly, between deconstruction and discourse analysis as textual theories. Thus one might claim that part of the appeal that made Kittler's professing, in that deliciously untranslatable word, 'schulbildend', is indeed that he draws on implicit and explicit translations of French post-structuralist theory as much as he does on German and Anglo-American references: Lacan and Virilio, Turing and Shannon, Heidegger and Nietzsche, to name but a few – though, in an interview, Kittler said: 'for me, the import of Foucault and Lacan rests on the fact that their writings are two possible ways of returning to Heidegger without naming him', and surely the same goes for Kittler's Derrida, who in turn was engaged in readerly-writerly exchanges with Foucault and Lacan as well (Armitage 2006: 20).

In an important and pivotal sense, Kittler's work authorizes and gives rise to scholarship in the theoretical and historical humanities that neither bridges nor overcomes, but rather fills the gap in what a prior generation had diagnosed as two cultures in academia (Snow 1956; Gould 2004). A cursory summary of Kittler's take on 'Derrida's Didaktik' turns up standard recommendations Kittler had been making for a long time: attentive reading is a necessary virtue, even and especially in times when journalism and politics pay no heed to the traditions of accurate and faithful citation; university employees must reflect critically on universities and their role, even and especially in the realization that the professorial profession is an impossible one, as he quotes Freud; an epoch of the post is coming to an end as more and more data present themselves on silicon chips – which means, as Kittler writes with reference to Nietzsche, Foucault, and Derrida, that knowledge transfer is a radical challenge of our times. Finally, alluding to Derrida's hope of construing a program that can compete with the supercomputer that is a James Joyce novel, Kittler argues that the two elementary cultural techniques of reading and writing must be extended by a third one, namely programming: the didactic imperative of media studies is to go beyond using 'Microsoft Word 5.0', as Kittler mockingly writes, and to teach 'how texts are truly programmed'.

In sum, Kittler's entry in the *Jahrbuch der Deutschdidaktik* is a succinct survey of his own recursive, self-reflective expectation that institutions be read, that their textual productions be collapsed back into the rules governing their authority – that authorship be relegated, in a literal sense of binding it back to what gives rise to it. In explicating his take on 'Derrida's Didaktik', Kittler unfolds again his take on a reading procedure that rejects conventions of hermeneutic and political interpretation in favor of an implosion – finding in the governing or programming structures of institutions the rules that write the texts that issue from those institutions, as Kittler does in his reading of Schiller's *Don Carlos* (and more generally of Schiller's early dramatic work) on the basis of the program drafted in 1770 for a school where Schiller enrolled as a young student, the Karlsschule. This of course means that instead of reading *Don Carlos* as protest against the Count, it is in fact, Kittler argues, merely Schiller copying from the rules the Count had set up for his school.[4] But the lesson is somehow expected to scale – from Schiller's schooling to higher education at the end of the 20th century, from before the typewriter and the gramophone to after fiber-optic computer networks.

Simply put, media studies is the introduction of the question of technology into the humanities, proposing to shift the focus to 'networks of technologies and institutions that allow a given culture to select, store, and process relevant data', as Kittler put it (Kittler 1990: 369). Scholars of human culture became increasingly 'influenced by the twentieth-century fluidity of media, in which a story might begin as a magazine serial, then become a book, and then a film', as Northrop Frye put it, and the necessity to supplement established models with new ones became evident (Frye 1991: 6). It was Vilem Flusser who argued, in an essay titled 'On the Crisis of our Models', that some models of scholarship were neither furnishing historical fidelity nor allowing for contemporary media technologies that were revolutionizing every field of knowledge generation and distribution (Flusser 2002). Starting from 'the suspicion that some new media of communication might offer possibilities for the elaboration of new types of models', Flusser and others of his generation pioneered what has come to be called 'media studies' as they encountered television and video art, computation and networks. To Flusser's 'theoretical thinkers and those who experiment with the new media', there was a manifest need for an intervention in the interstice between exclusionary academic practices, specifically in supplementing spatial models (writing, graphs, illustrations) with time-based modeling (films, videotapes, etc.).

So what moves an entire generation of academics trained in philosophy and literature, like Flusser and Kittler, to postulate new models is the surmise that new cultural technologies not only had to be accounted for but also and by the same token came to their aid, between and beyond techno-scientific and interpretive modes that were the legacy of academic divisions of labor since the Enlightenment roots of the research university. Where, traditionally, language and image were understood as separate realms of signification, new media no longer juxtaposed their symbolic and technical modalities but combined them. Where one had classified speculative endeavors as either fiction or science, out of science fiction arose not just a new entertainment genre but also a range of new industries catering to the gadget lover in a media society. And the differences between thinkable and sensible, between imagination and perception, are drawn differently where new media give rise to new forms of exploring and expressing things that had previously seemed unimaginable or unthinkable.

The use of models of course has a long tradition in education, from long before Francis Bacon's 'New Atlantis' provided a 'model for a college' to long after Descartes invited his readers to follow his model of thinking. The term is often taken literally, as when artists including Leonardo, Michelangelo, and Dürer, or Galilei, but also the philosopher Leibniz, drew and built models of defensive fortifications. Closer to our time, it was famously the Tech Model Railroad Club (a train set maintained in the 1950s and '60s with an elaborate communication system) that gave rise to the MIT hacker scene; or consider the long tradition of the model airplane – from before the Link Simulator to after the current generation of Microsoft Flight Simulator games (Levy 1984: 50–2; Johns 2010: 473).[5] And indeed, it is the airplane that bundles and focuses the kind of media analysis that Kittler models: for while 'in the jumbo jet, media are more densely connected than in most places', they remain divided into two areas of competence: computers, radar, diode displays, radio beacons, nonpublic channels are at the disposal of a necessarily interactive crew, while passengers are restricted to audio tape,

film, and airline cuisine — one-way consumption, with the notable exception of the in-flight telephone.

Yet this remark by Friedrich Kittler can be found only in the first translation of his preface to *Gramophone, Film, Typewriter* as it appeared in a journal in 1987; inexplicably, however, this paragraph is missing from the published translation of the entire book.[6] To different degrees, then, one may opt to be partially disconnected from the experience of flight by canned media, or one may attempt to brave the tasks of navigation and service with multiple connections. This amassing of all media in one place can deliver any message – even, as the coordinated suicide attacks by Al Qaeda against the United States on 11 September 2001 revealed, the final message that is the bomb. Yet to passengers and crew, and by extension to all of us living in media society, the direction our sensurround takes us is not always evident. Beyond flight and radar, we arrive at information theory and computing: and indeed Kittler's greatest respect is reserved for ideas so explosive that they cannot be tested except in simulators, *in silico* – like the mathematics of Hilbert, Turing, and von Neumann (Kittler 2002). In short, for Kittler, learning from the arts and sciences implies a model didactics.

Counting, measuring, and weighing give rise to the construction of instruments and machines; in turn, such machines can calculate, advancing the use of formulaic expression of theorems and axioms, rules and laws. This leads to the point where complex models can serve to illustrate, depict, visualize, and test speculative or hypothetical constructs and ideas. Invoking these processes is of course not in the least to suggest that the humanities emulate the sciences, become quantitative sciences, or use computing to lend a scientific veneer to what they continue to pursue. On the contrary: what the study of cultural technologies in general and media studies in particular powerfully suggests is that it would radically impoverish our intellectual landscape to leave to the techno-sciences the salient interpretive and heuristic tasks that are the expertise of the humanities. The point is, rather, that Kittler and others of his generation abandon hermeneutics and philology in favor of what one may call 'modeling'. Indeed, the use of models is familiar to students of semiotics, epistemology, and cognitive science, and found entry into systems theory, cybernetics, and information theory as well (Stachowiak 1983; Mahr 2003). Just as we rely on our cognitive models of people to interact with them, we rely on scaling up our models for collective social situations. Certainly the world of finance has relied rather heavily on models, based on basic assumptions that are tested by longitudinal data. Hence rational expectationalists believe the economy naturally reverts to equilibrium, and seek 'beta' in the wisdom of crowds, while reflexive behavioralists believe that the world persists in a state of fluctuating disequilibrium, and seek 'alpha' opportunities in the madness of crowds. Media studies is likewise sundered between those who see crowd-sourcing as the major force of transformation and progress, from the print and screen mass media of the 20th century to the diversified mediascapes of the 21st century, and those who warn that the dispersion of attention and the sheer noise of ever larger numbers of participants in media drown out what is most valuable, whether it be in news or in entertainment.

This is not the place to try and arbitrate between these irreconcilable positions. The standard financial disclaimer that past performance is no guarantee of future results surely is an apt analogy for media history as well. Nonetheless, media studies may expect

to extract some benefit, though not as formulaic as an alpha or beta deviation, from not only recording history but also extrapolating trends. One major trend of the past five decades is undeniably a confluence of massive computation at speed with numerous variables, giving rise to pattern detection as it moves from data to image to data, and input and control devices that have greatly expanded the way we store, process, and distribute information as networked computers become the 21st century's 'epistemology engine', inheriting the role of the camera obscura for philosophers like Descartes or Locke (Ihde 2006: 79). For readers of Kittler's lectures on *Optical Media* that just recently appeared in English, it is a regrettable taunt that his genealogy there should stop short of the computer age; but it is of course true that Kittler elsewhere devotes much attention to the irreducible difference computation makes in human culture and aesthetic communication (Kittler 1997, 2010).

If computers can identify and register components of a particular object class at various levels of detail, then models play a seminal role in programming them to recognize an image as input so as to produce a symbolic interpretation that can adequately describe what objects are present, including information about spatial relations between objects.

> Each model is defined in terms of a subset of points on a reference grid, *the template,* a set of admissible instantiations of these points, also referred to as *deformations* of the template, and a statistical model for the data – given a particular instantiation of the object is present in the image. (Amit 2002: xii)

Logicians might object that a model ought not be defined by having the 'model' act as one of its own three components, but the tripartite structure of template, instantiation, and Bayesian distribution yields computer-recognizable objects, which is of importance in such fields as facial recognition software, medical imaging (e.g. ultrasound or MRI), satellite image evaluation, and so forth – for both detection and recognition. The double use of the term 'model' demonstrates how dependent this algorithmic approach is on two pre-existing conceptions: namely, both of what defines the overall approach to image recognition and of what defines the statistical attributes that are useful to that approach.

Such terminological difficulties notwithstanding, the term 'model' is therefore used advisedly here, as a concept that helps bridge subject and object, consciousness and behavior, theory and empirical data, imagination and experiment. One can distinguish between a model of something, and a model for something, in saying provisionally that the former helps us render a question or problem so as to make it tractable and accessible, whereas the latter implies an exemplary, guiding, or normative role (Geertz 1973: 93). Yet both kinds of models are exercises of the imagination. The impressive *Fram* museum in Oslo, for instance, shows several models of ship hulls that were developed and tested before building the full-scale ship, which famously went on to endure repeated trips to both polar regions of our planet – adventures that surely do not only belong to the history of science, but have also continuously fired the human imagination so as to engender numerous novels, films, art works, and other cultural expressions, drawing on utopian fiction as well as on military history that makes extreme exploration and later extreme tourism possible, and most recently drawing also on an awakening global ecological concern.[7]

The term ‘model’ is also used in the context of software design. Here too, a model is more than a hypothetical description of a complex entity or process. Just as the arrival of the personal computer changed the common perception of what software could and would do once it was no longer the exclusive preserve of large-scale research laboratories, the arrival of the internet and its most popular cultural layer, the worldwide web, again changed the perception of what roles software could and would play. Furthermore, as portable computers and mobile phones, cars and toys have computing and networking capabilities, the ‘software agent’ became a prevalent metaphor, blurring the boundary between people and technology.

While in general parlance, an agent is a person carrying out a task on behalf of someone else (travel agent, talent agent, real estate agent), in computer science an agent is a software entity that can react to changes in its environment: whether it is the Roomba robot vacuum cleaner, the Tamagotchi simulation toy, the AIBO electronic pet, a computer virus, a smart home system for automation (and remote control) of lights, sound, irrigation, alarm, air conditioning, or a web crawler serving a search engine. On a larger scale, multi-agent simulation systems like the Smart Whole Air Mission Model (SWARMM) can integrate a physical simulation of aircraft with pilot tactics and strategic reasoning (Sterling and Taveter 2009). In this context of applying lessons learned in modeling to integrated systems, the promise is that if you can model, you have progressed a significant part of the way towards building something complex, assuming your observations and implementations of relations or mechanisms are transferable. Indeed, the main developer for successful computer games such as *Left4Dead* learned his craft on a flight simulator – but the question remains: how does one get from building a model of the solar system in secondary school to building a model of a complex open world where humans can interact with one another and with artificial intelligence instances such as non-player characters?

A model needs to be complex enough to reflect the issues it needs to address, but no more complex; it thus tends to be an approximation, rather than a scaled copy, of what it seeks to aid with – thus, in this sense, to model means to abstract. Before scaling up to complex scenarios where agents automate some or all of the activities, the software designer needs to pare down interactions, responses, or an expected range of expressions so they can fit into a programmable repertory. Moreover, taking cell biology as the study of complex adaptive reproducing systems gives rise to computational modeling, and so on – there is scarcely an academic discipline that does not make productive use of models, be they depictions or prescriptions, constructions or speculations, abstractions or illustrations (Szallasi et al. 2006).

Needless to say, in the humanities the emphasis will necessarily remain on theoretical rather than physical modeling, even in the face of collating and analyzing large data sets. Theoretical modeling here is not to confuse or conflate ‘model’ with ‘theory’ but merely to denote a heuristic and explorative function. A model can fulfill expectations and thus confirm theoretical hypotheses, or it can violate them and thus question the basis for its modeling – ‘as a tool of research, then, modeling succeeds intellectually when it results in failure’ (McCarty 2004). Some commentators propose to clear things up by stating that modeling may be useful, appropriate, stimulating, but by definition never strictly true; its pragmatic pay-off is in isomorphic abstractions that allow us to test for variations

and variables in scenarios and case studies (Shanin 1972). As Flusser put it, 'models are tools for the understanding of phenomena' (Flusser 2002: 75). Any such model is by definition a simplified and thus idealized representation.

Now, it is important to remember that as Kittler turned away from the history of literature and towards a larger frame of cultural reference – not just media technologies but mathematics, codes, archives, music, and other cultural technologies – he sought to draw a distinction between fiction and simulation, coming down rather forcefully on simulation's side (Kittler 1988; see Engell 1994; Winsberg 1999). Thus it might not surprise his readers when Kittler, in his essay on didactics, makes a simulated Derrida speak. Were he to invite Derrida to deliver the address in Kittler's stead, he speculates, Derrida might well begin by announcing that he was not there to teach anything, except that teaching something is impossible. This statistical extrapolation, Kittler continues, further suggests that Derrida would follow up with commentary on that initial speech act, including the clear distinction between the titular claim of a professor to profess the models of a profession, simultaneously undermined by the proposition that such didactics is impossible. Kittler concludes that this simulated guest lecture would therefore need to enter into a 'spectral dialogue' with texts, with precursors and models – which is to say that such a fictive but plausible Derridean didactic lecture would necessarily be programmed by the academic program, by the institutional logic that binds pedagogy and didactics of higher education to the explicit consideration of institutional conditions of possibility, which is to say, in this case, those of the university.

> The opening of this simulated Derrida lecture with its doctrine that teaching is impossible would be distinct from the *docta ignorantia* of Nicholas of Cusa and from Faustian knowledge 'that we cannot know' – it would indeed contain information and thus a didactic function: for the listeners would learn about texts and facts from European and American history insofar as it is a matter of analyzing or deconstructing their fundamental concepts. Instead of leaving master thinkers well alone to archival slumber, their arguments and terms would return into memory. Thus deconstruction fulfills the elementary determination of pedagogy to fight against oblivion that never rests in the oscillations of presence and absence, or of generations, at least as long as there are data outside of databases. (Kittler 1989: 34)

Kittler's Derrida-model, in short, is not simply mnemotechnics as pedagogy, but an ironic re-staging of themes and arguments from the history of thought, rather than simply citing them or alluding to them. To legitimate his speculative model of a Derridean didactics, Kittler quotes actual lectures delivered by the non-simulated Derrida: at Freiburg, a discussion (translated by Kittler) of the academic practice to demand a lecture title that inscribes the promise to deliver a speech in state institutions; at Strasbourg, a lecture on the concept of gender in philosophy and literature, including reflections on co-education and the possibility of reading conference talks as love letters; and at Cornell, the explicit interpretation of the American research university as part and packet-switch of what Eisenhower called the 'military-industrial complex' that binds multinational corporations and information technologies into a concept of rationality that is overtly strategic, contrary to other concepts of rationality that a university might allow for.

On the one hand, Kittler was among the first to invite Derrida to lectures in Germany, and to translate Derrida's texts into German. On the other hand, a cursory tally in his references does not always do justice to what Kittler's writing owes to deconstruction. *Discourse Networks* credits Derrida with a mere 'rediscovery' of grammatology, although Wellbery's foreword labors mightily to identify the deconstructive traits in Kittler's work (Kittler 1990). *Gramophone, Film, Typewriter* reduces *The Post Card*'s complex networks to an allegation that 'voice remains the other of typescripts' – as if Kittler had not in fact taken a much more subtle evaluation of hearing oneself speak from Derrida (Kittler 1999). What happens to the writability and citability of texts if they are sorted into such neat binary distinctions of logical or poetic orientation? What, to Kittler, is the citability and readability of the body of work titled Derrida?

When Kittler talks of Derrida's didactics, he collapses the logic of academic institutions into the texts they read, write, and circulate. This storage, processing, and transmission of deconstructive writing within Kittler's work is therefore perhaps most interesting where it touches upon the university itself, and upon the didactics of discourse analysis and media history after post-structuralism. Much might remain to be said about citation politics, about translation politics, about the strategies of publishing and marketing academic books in France and Germany and the USA and elsewhere; and certainly Kittler has acknowledged a debt of gratitude to Derrida with regard to those institutional parameters. But this is perhaps not the place to lapse back into an ideology of faithful friendship and philological virtue in the teeth of such institutional pressures. The point here is simple: instead of theories writ large, one can productively continue the work Derrida and Kittler and others have begun, by taking their interventions not as bridge-heads and tactical advances in a real or imaginary war of academic forces, but rather by taking them as models – scaled down, modest, functional, pragmatic, dynamic ways to develop and test hypotheses. The point surely is not which approach is most 'true' to theory but which will yield a solution set that resolves the features of the system we seek to understand – whether it be in terms of philosophy, literary history, or media technology.

Thus the lasting legacy of Kittler's reductive yet didactic 'Derrida model' is not only that it productively side-steps mutual rear-guard actions in the academic trench skirmishes of the culture wars, but that it opens up to a research design that enables a rigorously historical and conceptual study of cultural technologies. If Kittler has found his most productive reception in film and media studies, it is because the photographic, cinematographic, televisual, and computational media defining our lives demand better intellectual models instead of new theories (McCarty 2003). Beyond structuralist and semiotic accounts, beyond even the most expansive textual theories to which Kittler's essay quietly relegates Derrida, what Kittler offers to teach would account for the epistemic power of images, the programmatic inscription of mathematical formalism, and go beyond binaries of orality and literacy to fully account for production, storage, and transmission of rich data. Kittler would have you study texts that are technologies, as in executable code; he would have you pay attention to the fungible materiality of the symbolic and to the operative affordances of institutional programs. In short, despite the fact that Kittler's academic output has been translated and received in terms of

poststructuralist theory, there is a model here – a functioning model with stable properties that can be tested with multiple variables, regardless of the specific validity claims of theoretical discourse as found in Heidegger and Nietzsche, Shannon and Turing, Lacan and Derrida.

Notes

1. In a more recent text, Kittler even suggests that everyone before 'All you need is love' begins with a *captatio benevolentiae* – and does so himself, again (Kittler 2009: 137).
2. An overview of the German media studies scene since 1970 is offered by Geisler (1999), and a decent introduction to Kittler's work available in English is Partington (2006). See also the recent debate in the pages of the *Zeitschrift für Kulturwissenschaften* 2 (2008), 113–152 and of *Grey Room* 29 (Fall 2007).
3. The lecture by Derrida which Kittler cites was first published in English as 'The Principle of Reason: The University in the Eyes of Its Pupils' (1983).
4. Friedrich Kittler and Stefan Banz (1996: 10–12), with reference to Friedrich Kittler (1984).
5. On the Link simulator and its progeny, see http://www.link.com/, http://www.microsoft.com/games/flightsimulatorx/, and http://www.rc-airsim.com/Gilbreth.
6. The complete translation of Kittler's piece appeared in *October* 41 (1987: 101–118) and was reprinted in Kittler (1997: 28–49, quotation from 32).
7. On this trajectory, see Peter Krapp (2011, forthcoming).

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Biographical note

Peter Krapp is Professor of Film & Media Studies and English at the University of California, Irvine. He is the author of *Deja Vu: Aberrations of Cultural Memory* (University of Minnesota Press 2004) and of *Noise Channels: Glitch and Error in Digital Culture* (University of Minnesota Press 2011), as well as co-editor of *Medium Cool* (Duke University Press 2002), with Andrew McNamara. His research interests include digital culture and media history, secret communications and cultural memory, and the history and theory of gadgets, games, and simulations.

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107(1) 33–38

DOI: 10.1177/0725513611418034
the.sagepub.com

On Kittler applied: A technical memoir of a specific configuration in the 1990s

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Abstract
This 'technical memoir' shares insider knowledge of a specific scholarly and scientific situation in the second half of the 1990s: how a group of students and researchers at Humboldt-University Berlin, together with their teacher, media historian Friedrich Kittler, combined historical questions with computer science. The discussions and projects developed in this circle constituted a scholarly practice which would be called today digital humanities.

Keywords
application of scholarly knowledge, digital humanities, media history, media practice

Berlin-Mitte, second half of the 20th century's last decade: At the beginning of each new semester we were able to witness the same procedure. 'We' were a small group of students and assistants who had worked with Friedrich Kittler since he came to Humboldt University. We were not only interested in the issues of media history and the newest theories, the subjects Kittler was famous for. One of our common interests which led us to gather week by week was computer programming. There were usually between three and five of us, meeting during the semester each Thursday from 6 to 8 pm in Kittler's office at Sophienstraße in the heart of Berlin. It was the only room of the Humboldt University campus where smoking was not only unofficially permitted, it was considered as an inevitable signifier of studying media theory to light a cigarette from time to time during class and, after some hesitant as well as thoughtful moments of silence, to utter a new

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theorem or at least mention an historical event which nobody had ever heard of before, though it was aimed at the core of the argument developed during each session.

The following scene occurred at the beginning of each term: Kittler's lectures and seminars were usually crowded with students. When he was lecturing on 'the cultural history of cultural studies', or the classes about the history of drugs (together with Thomas Macho), those courses naturally were attended by many more than the capacity of the rooms was designed for. The range of Kittler's thinking was displayed in the four courses a German professor has to offer each year. He held two classes with different subjects each semester, e.g. 'Radiogeschichte und Hörspiele' (Radio History and Radio plays), 'Europäische Universitätsgeschichte in Textbeispielen' (European History of Universities with selected texts), or, 'Die kleinen Wahrnehmungen' (Small Perceptions). However, there were also the same two subjects, which were always announced by him under the same titles, only the additional subtitles underwent minor changes from time to time. The first was usually called 'Medien- und Wissenschaftsgeschichte' (History of Media and Science). This was the traditional German 'Oberseminar'.

Participation required a personal invitation. It took place every Tuesday from 6 to 8 pm, serving as the hot spot for cutting-edge research in media history and theory by internationally renowned scholars and intellectuals as well as for his undergraduate and graduate students from Humboldt University. Among the guests were David Kahn, editor at the *New York Times*, as well as famous independent film-makers like Harun Farocki or Andrei Ujica (*The Autobiography of Nicolae Ceaucescu*, 2010, or *Videogramme einer Revolution*, 1992). Colleagues from Japan made their way to the Sophienstraße as well as scholars from South America. The talks were almost about everything which could be handled in an intellectual challenging manner, ranging from the genealogy of the popes to Norbert von Hellingrath and Erich von Hornbostel's duties in the First World War.

And there was the other class, usually entitled 'Graphical Programming on UNIX Workstations, Part VII', or similar. Those students who were not familiar with the habits and the division of the classes, or those who were just interested in seeing the 'master' talk about graphical programming on UNIX workstations, came to the office in the term's first session. Usually, the number of chairs was not sufficient and many had to sit on the floor. Then, the 'same procedure as every year', began: Kittler, somehow overtaxed by the rush, pointed out what was required to attend and complete the class successfully: the minimum precondition for this course was the ability to handle the Linux free c compiler 'gcc' with all flags and options on the command line. Silence in the room. For those who were willing to learn directly how to handle the beast he would briefly give an introduction to this art. He, then, went to the chalk board and – with verve – wrote one line:

```
gcc -ansi -pedantic -Wall -Wextra -Werror -o myprog file1.c file2.c -lm
```

At this point, after finishing the single line, the first third of the crowd had already left the room. Kittler then spent the rest of the class philosophizing about the different options one can use to configure the compiler. Those are many, printed on 258 pages in the online manual by the founder of the Free Software Foundation and one of Kittler's former heroes, Richard M. Stallman. To give only a small taste, the overall or general options look like this (to give just the beginning):

-c -S -E -o *file* -no-canonical-prefixes
-pipe -pass-exit-codes
-x *language* -v -### –help[=*class*[,...]] –target-help
–version -wrapper @*file* -fplugin=*file* -fplugin-arg-*name*=*arg*
-fdump-ada-spec[-slim]
-d*letters* -dumpspecs -dumpmachine -dumpversion
-fdbg-cnt-list -fdbg-cnt=*counter-value-list*
-fdump-noaddr -fdump-unnumbered -fdump-unnumbered-links
-fdump-translation-unit[-*n*]
-fdump-class-hierarchy[-*n*]

If you wade into the depths of *C* programming it is essential to know and distinguish between the different options of debugging your program, which are numerous and daunting.

Wide eyes and bewildered silence was the common reaction of those who had stayed. Finally, Kittler recommended the one and only book everybody would need to pass this course successfully: Brian Kernighan and Dennis Ritchie, *The C Programming Language*, Prentice Hall, 1978. Usually, the very next week, it was just the five of us, again.

Occasionally, Kittler was envied by his colleagues (especially by one of the fellows at Humboldt, a 'real' computer scientist in the group of the Hermann von Helmholtz-Center for Cultural Techniques) that he – trained as a literature scholar – was not only able to understand and theorize computer science to an astonishing extent, but also able to develop code by himself, and even teach this to his students. Kittler was writing *Assembler*, an abstract, low-level computer language, like others used to write their diaries. And, what is more, with us, his students and assistants, he fulfilled his theoretical claims and promises. One of his most prominent demands was that nowadays people should not only be obliged to learn to read and write. It is now also one of the required fundamental cultural techniques to understand how computers can be directed. After writing whole books about the subtle effects and inner-political aspects of alphabetization (Kittler 1990), Kittler demanded an equal level of knowledge in writing computer sources among students, scholars, and intellectuals. Given the strong influence of technical constraints and challenges, it is also necessary to learn at least one or two formal languages in order to overcome the dominance of and hence dependency on large computer companies like Microsoft if you want to command your PC rather than be commanded by the machine. In short, Kittler wanted to establish a real *computer literacy* (see e.g. Kittler 1993, 1995, 1997). And our group was both the justifying nucleus of this demand and his evidence of its possibility.

Now, what happened during our weekly meetings? They were understood as gatherings of practitioners, though we often discussed rather theoretical problems. For example, while one of our members, Axel Roch, was working at the Berlin-Brandenburg Academy of Science and Humanities, charged with the task of digitizing a large collection of manuscripts, we were trying to apply some fundamental insights of Johann Heinrich Lambert's enlightenment phenomenology to the manuscripts in order to

develop an algorithm which was able to automatically recognize those different types of handwriting. Unfortunately, we failed in this specific case. (Otherwise it would have been a great chance for a start-up company ...) However, usually we sat together on Thursday evenings to exchange ideas and advice on specific computer programming problems all of us had encountered while working on different semi-private, semi-official projects. Those projects we pursued during the years were quite heterogeneous. They ranged from maze-solving algorithms, which Peter Berz developed after being inspired by Claude Shannon's toys, up to the Markov chains generator, a theory as well as a practical program we discussed in depth. While Philipp von Hilgers developed a fancy Mind Reading Machine from Markov chains, also inspired by Shannon's writings, which in fact laid the ground for his company 'meetrics.de' today, I was busy writing a reference manager or digital card index named 'synapsen', adopting the idea of Niklas Luhmann's famous but analogue (slip box) card index made from paper and wood.

By the way, a Markov generator is a program based on a model devised by Andrey Andreyevich Markov, a Russian mathematician (1856–1922). The Markov process encompasses two steps: firstly, statistical knowledge is gathered by analyzing, say, a text written by Jane Austen while the program stores the probability of one word following the other, or, by storing the probability of one syllable following the other. The results are long lists of probabilities of words or syllables, which enables the second step: after the analysis the generator is able to do the synthesis, that is, the program can produce new text depending on the lists of probabilities in its storage. So, if the user enters a term, e.g. 'weather', the program starts to write a quasi-Jane Austen text completing the sentence with words like 'rain' or 'blue sky'. We fed our computers with Heidegger's *Being and Time*, Kafka's *Trial* and finally Goethe's *Wilhelm Meister*. Though we did not have the impression that the program's synthetically produced texts really sounded like Goethe or Kafka, its output somehow came close to Heideggerian prose. But that may be for other reasons.

In the summer semester 1998, Kittler was on sabbatical and his main occupation was devoted to improving his graphical algorithms. In fact, it was a radiosity program, which is something similar to a ray-tracing model of rendering 3D computer graphics. Instead of calculating the different paths and angles each light beam of a light source might take in a 'ray-tracing' algorithm, the radiosity principle calculates the shades and luminosity of tiny areas and fragments of objects within an image. Rather than following the rays from a given light source, the radiosity concept is focused on the diffused reflections of the objects in the image. Kittler spent nights and days on improving his code, sometimes going without sleep for 48 hours. Then he sent it to the originators, a computer scientist couple (Josef Pöpsel and Ute Claussen), living in Castrop-Rauxel, Germany, waiting in suspense to see whether he would get an answer. However, he received no response (at least not at this time – a decade later he finally received an excited answer) and, of course, he was disappointed. After so much work speeding up and improving the shiny algorithms, they gleamed brighter than ever. His pleasure was genuine when he was able to save a CPU cycle or two within the Assembler code, and he really rejoiced with us when somebody presented an optimized algorithm.

What happened to our group, the circle of computer nerds who others sometimes have called 'Kittler Youth'? After the year 2000 most of the group's members graduated – in

different fields, mostly with theses on historical aspects of media, e.g. the foundations of communication theory by Claude Shannon, the sand box war games of the Prussian General Staff in the late 18th century, the history of card indexes from the Renaissance to the early 20th century. And it was with the beginning of the new millennium that Friedrich Kittler turned his attention to a totally different field of study. In the early 21st century, he followed his philosophical heroes, Heidegger and – to a lesser extent – Foucault, by going back to the ancient Greeks in order to examine the close relations between music and mathematics.

As in his other, more influential books, Kittler once again explored *terra incognita*. He also developed a new style in his prose, which, like his subject, is carefully composed, with metrics and rhythm calculated. And, last but not least, this project seems to be his most personal work: the analysis of ancient Greek text fragments is mixed with a lot of allusions to his close friends and followers. Parts of this text can even be called autobiographical. The focus, however, is on the understanding of the genealogy of both music and mathematics, starting from one solitary, ancient source: the first vowel alphabet. An eight volume work in four parts is supposed to be the outcome of this endeavor, bridging the pre-Socratics on the one hand with the age of the Turing machine on the other. Two books have already been published and we are eager to read the other six volumes in the following years. He is setting out to show how our own computer-based interests have a long tradition, because they are deeply rooted in the work and understandings of ancient Greek mathematics. Still, it is not only the Greeks who could think (as well as draw and compose, paint and calculate) without having the expertise to handle the rich as well as multitudinous options of the *GNU Compiler Collection*, gcc.

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Thesis Eleven
107(1) 39–46

DOI: 10.1177/0725513611418038
the.sagepub.com

Blindness or insight? Kittler on culture

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Abstract
For a long time, 'culture' appears only to be an effect of the power of discourses and media in Friedrich Kittler's works. But in his Berlin lecture series on the cultural history of cultural studies, he discusses the historical formations in which a discrete science of culture could emerge. His perspective not only highlights the historical foundations but also the blind spots of cultural studies.

Keywords
concept of culture, cultural studies, Friedrich Kittler, media theory

You could talk about the irony of history when a critical theory of media and literature like Friedrich Kittler's is confronted with the cultural turn of cultural studies. For a theory that, in the tradition of Marshall McLuhan as well as Michel Foucault, deduces all culture to be a dangerous illusion or ideology from the effects of power – i.e. the political, military and technological power of the media – turning to culture seems, at least latently, to be a precarious infatuation. What value could be attached to the concept and matter of culture in Kittler's works?

In Kittler's early texts, the concept of culture is hardly discussed but strictly traced back to the a priori of media technology. As the editor of a 1980 anthology programmatically titled *Austreibung des Geistes aus den Geisteswissenschaften* (Expelling the Human Spirit from the Humanities), Kittler's attitude has been provocative from the beginning. Announced as 'programmes of post-structuralism', theories based on the materiality of discourses, i.e. of semiotic processes, were given priority. The paradigm shift of psychoanalysis, structural linguistics and ethnology shows that the older categories of 'mind', 'human' and 'history' are effects (Kittler 1980: 8 ff.). Accordingly, culture would also be an effect, which, although controlling the discourse of civil

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subjects in politics, is itself dependent on the formations of discourses and their media. Kittler is driven by the critical insight that the era of universal hermeneutics has to be replaced with other methods of reading. Under 'highly technical conditions' – meaning not only computers but already reading and writing – speaking about culture is seen as giving meaning to the world in analogy to the appropriation of meaning by the prisoners in Plato's Cave, who only see the shadows on the wall – not the technical reality of media and their manipulation of the senses (Kittler 1985).

But this is also why it can be argued that Friedrich Kittler's work has always been focused on the conditions of culture. His texts are characterized by an analytical acuity, not only describing the history of technology but illustrating the interrelation of medium and 'message'. This applies initially and primarily to the culture of reading and writing in its epochal turning points between the classical age of representation and the era of technical media.

In his professorial dissertation *Discourse Networks, 1800/1900 (Aufschreibesysteme 1800/1900)* (1985), which proved to be groundbreaking for German literary and media theory, Kittler analyses the socio-historical and material conditions of reading and writing. What is known in literary studies as the cultural era of the 'Age of Goethe' and romanticism he traces back to the romantic poets' socialization to a maternal alphabetization, which both naturalizes and eroticizes language. In the context of an educational reorganization crucial for that time, which can be seen in the transition from learning the alphabet letter by letter from erudite fathers to the progressive teaching of words as meaning and context by mothers, fluent reading and writing developed, in which language itself does not refer to its technical nature as a rhetorical figuration but always to nature, meaning and signification. It is the typewriter around 1900 (in addition to other new media, like gramophone and film) that will transform this logic of the signified into a logic of the signifier by means of a splitting of meanings or words into single letters. Its most obvious literary expression may be avant-garde and expressionism, but it is based on a new psycho-technical calculation of the senses, established as a science by Gustav Theodor Fechner (see Kittler 1990: 229 ff.).

Around 1900, literature and culture are put under competitive pressure by the new analogous media, such as photography, film and gramophone, which are able to record reality in motion – like the rushing of the sea – instead of only symbolizing it with words. Therefore, as modern technology retrospectively shows, culture has always been a 'discourse network'. Kittler defines this term as 'the network of technologies and institutions that allow a given culture to select, store and process relevant data' (Kittler 1990: 369). In a broader sense and with a term that has recently come to the fore, culture does not consist of thoughts, ideas or intellectual values, but of cultural techniques (see Maye 2010). The concept of 'cultural technique' is connected to the Classical Greek term *techne*, comprising cultural practices and rules such as reading, writing and calculating but also, for instance, eating or practices of the body. So, culture itself is repositioned, reconnecting the term to its etymological derivation (lat. *colere*, *cultura*) as the technique of farming and tillage, even colonisation, and detached from the intellectual-historical meaning as 'literacy', 'taste' and 'intellect'. Kittler will, however, only take up the term 'cultural technique' in his Berlin lecture series in the year 2000.

In contrast, in what could be seen as Kittler's early work (written between about 1980 and 1990), references to Michel Foucault's discourse analysis on the one hand and to Jacques Lacan's concepts of the Real, the Symbolic and the Imaginary on the other hand are central – as well as, above all, media, from the alphabet to the computer, simultaneously subverting and constituting the 'human being'. 'Media determine our situation' is thus the first sentence of *Gramophone, Film, Typewriter* (1986).

This 'cold', technical view prevails in the following period of Friedrich Kittler's work, which lasts until his Berlin lecture series on *Optical Media (Optische Medien)* (1999). While his early work still focused on psychoanalytical categories for interpreting literature (Kittler 1991), he now concentrates on 'technical writings', dealing with hardware, circuit diagrams or physical equations, like the signal-to-noise ratio (Kittler 1993) or the modes of operation of computer graphics algorithms (Kittler 2001b). But with the change from the University of Bochum to Berlin's Humboldt-Universität in 1993, Kittler entered the emerging academic context of cultural studies in Germany. As Kittler himself emphasizes, this is the context in which he lectured on *A Cultural History of Cultural Studies (Eine Kulturgeschichte der Kulturwissenschaft)* in summer 2000, which was published in the same year, with a second edition in 2001 (Kittler 2001a). Here, the concept and subject of culture itself is paramount for the first time. It is even more interesting to see how Kittler approaches this when we consider that he had hardly spoken more than two words on the subject before.

The cultural history of cultural studies

To get to the main point: Kittler is still less interested in the subject of 'culture' than in the constitution of its field of study. Consequently, his lecture series does not give an introduction to the conditions under which ancient cultures could emerge or present different media cultures (e.g. writing, letter press, computers, analogous and digital media). Kittler is interested rather in a doubly reflexive perspective, which – on the one hand – centres on the historical development of cultural studies, that is, not the question of what culture is but how an independent science of culture developed. On the other hand, reviewing the history of a science of culture requires a critical perspective on contemporary cultural studies. Kittler talks about the 'precarious state of cultural studies', indicating that precisely this precarious state – implying both risk and chance – is the 'main reason' for him to discuss this topic (Kittler 2001a: 11).

Therefore, it also needs to be asked what consequences result from the historical foundations of cultural studies, that is, the central demarcations separating the study of culture from other, already existing, disciplines – especially as cultural studies is a relatively new discipline, the foundations of which were set by Giambattista Vico in 1725. Particularly the separation of culture from nature and 'exact' sciences on the one hand and from technology on the other hand poses a problem, which Kittler takes into account from the start by pointing to the cultural technique of *colere* as farming (Kittler 2001a: 16). A different problem arises from cultural studies' genuine commitment to history: myths of origin are created, like the progress from orality to literacy, as cultural stages, which cannot be overcome until the structural anthropology of Claude Levi-Strauss. But cultural studies' implicit philosophy of history remains full of pitfalls,

as it is notional rather than historically accurate, relating the history of mankind in cycles (Vico) or stages of progress (Herder, Hegel), thus making cultural history also a matter of speculating about the future. And this means that cultural studies are not, as is often understood today, only innocently observing everyday and entertainment culture. It tends to be ignored that they also speculate about progress and, indeed, are part of cultural politics.

In his history of cultural studies, Kittler elaborates on successive periods: the epoch of the philosophy of history, from Vico to Hegel, is followed by the epoch of discovering everyday life and positivism in the 19th century. But Friedrich Nietzsche already anticipates the issues of 20th-century cultural politics, which Kittler then discusses with reference to Martin Heidegger's philosophy of Being. At this point, the lecture series ends. Kittler refuses to discuss the period leading to the present, not only the period of more recent cultural studies, but the whole era of (post-) structuralism and the computer. This, however, puts even more emphasis on the perspective of historically reconstructing the emergence of cultural studies and its extensive consequences for our perspective on them today. For instance, since Vico and the very beginnings of cultural studies, a differentiation from historiography can be observed: Cultural studies focus on language, regulations and rituals rather than on events such as wars, and are thus, from Kittler's subtle point of view, concerned with peace and harmony rather than with problems of authority and power. These schematic outlines already show that Kittler not only wants to historically reconstruct the emergence of cultural studies, but also to reveal its blind spots. Kittler shows that the 'founding document' of cultural studies, Giambattista Vico's *Scienza Nuova* (1725), already sets a course that obstructs certain insights and creates a sort of superstition, or misconception, itself: 'It has become the most successful superstition [!] that all historico-cultural cycles lead from the gods to mankind; this however systematically ignores the possibility that after gods and men, it will be the turn of the machines' (Kittler 2001a: 43).[1]

Thus, it is not only a matter of cultural studies' original legitimization, but also of its consequences. This is one of the reasons why Kittler's book is no introduction to cultural studies, but rather a simultaneously philosophical and literary-historical critical examination. In contrast to all the older explanations, dating back as far as the Greek and Roman theories on the emergence of culture as part of philosophy, the foundation (in every sense of the word) of cultural studies is the question – and its consequences. Why was it not before Vico that the need for a distinct discipline, which would later be called 'cultural studies', was felt? This question does not only imply revising the representation of the founding figures since Vico, historical reconstruction must also always concentrate on the current focus, risks and possibilities of contemporary cultural studies. As a label imposed on departments, Kittler asks if and how cultural studies differ from literary studies, not only with regard to its material but also to methodology. Instead of just happily taking up new material, for example from everyday culture or other media (comics, films and TV shows instead of literature), he demands that cultural studies reach a specific awareness by self-reflection (Kittler 2001a: 15 ff.).[2] It is the implicit hypothesis and approach of his lectures that this is only possible by reflecting on the history of the discipline's constitution, namely by reading old and forgotten texts. Effortlessly, Kittler demonstrates that cultural studies lacks a specific methodology as well

as a reliable canon of texts from which the relevant methodological expertise could be gathered.

Kittler then presents exactly this canon, deliberately ignoring all introductions to cultural studies as well as all contemporary positions. No contemporary theory is discussed; 'society' and sociology are explicitly excluded from the beginning (Kittler 2001a: 16).[3] Kittler's lecture series starts with the foundation of cultural studies by Vico, then pursues its history from Herder, Hegel, Nietzsche and Freud up to Heidegger. His pragmatic explanation for this blatant lack of all references to the status quo is that everything that has been happening since the Second World War and since the invention of the computer will have to wait for another lecture series. This is provocative indeed, but there are reasons for it.

At one point, discussing Herder's theory on the origin of language, he says: 'Since 1770, and not just since a slightly overrated contemporary American professor, cultural studies have been familiar with thick descriptions' (Kittler 2001a: 50). This polemic is not just directed against Clifford Geertz and his term, but against a blindness of contemporary approaches to their own cultural history. In his plea for self-reflection, Kittler's cultural history of cultural studies is the attempt at a foundation in two respects: firstly, in compiling the required canon of central texts, which initially gives rise to the formation of a science of culture, but secondly, as a critical demonstration of what became possible – but also impossible! – to think due to these foundations.

Therefore, Kittler narrates the cultural history of cultural studies as a history of tragic turning points and differentiations with significant effects, in brief: as a tragedy of blind spots. The constitution of a science of culture also brought forth some very persistent myths. For instance, it is one of Kittler's critical as well as historically and philologically important clarifications that Herder's theory of language established the still favoured 'narrative' of the priority of oral over written language, and not Vico before him, who explicitly and systematically assumed their synchronous originality (see Kittler 2001a: 48).

Other serious consequences already emerge from Vico's foundation. Directed against the blindness of philosophy (of nature), Vico claims the discovery of culture with a powerful gesture: man can only conceive what he created himself. Therefore, cognition is only possible in the sphere of culture. But, as Kittler shows, this attack is not directed against the history of philosophy, but rather against the philosophy of Descartes and thus against the mathematical philosophy of nature. While Descartes systematically conceives man in the singular, Vico's inversion posits a presupposition that will have serious consequences: man in the singular becomes a collective singular called 'man' in his writings. Kittler concludes that cultural studies have always been taken in by the illusion that culture was the same for all people – even that all people were the same and comparable to each other. Only post-colonialism since Edward Said established a very necessary correction of this presumption.

At the same time, Vico's opposition to the philosophy of nature gives cultural studies a historical perspective, which from Herder to Hegel is then established as a history of philosophy. But, paradoxically, Vico's explanation regarding the transition from the divine origin of the Bible to the beginnings of humanity in archaic idols is not historical in itself. For Vico, culture is a three-phase model that keeps repeating itself, globally and

historically, for all people, in all times. This makes cultural studies less historical than future-oriented. The manipulation of culture, its political control, has come to the fore since Nietzsche and can still be seen in the empires of our times. At the end of his lectures, Kittler stridently points out the implication of a cultural policy that has simply been forgotten in contemporary cultural studies, because it does not read the Western canon anymore but is only interested in everyday culture: 'Cultural studies, as far as I have encountered them, replaces culture with the mundane and Herder's peoples with minorities … In historical situations, in which ... global corporations like Coca Cola determine the mundane and lobbies … decide on minority politics, this is a wonderfully feigned, but even more fraudulent academic innocence' (Kittler 2001a: 249).

Of course, Kittler does not only discuss Vico and Herder. He sets this first era of cultural studies, founded on universal history, against a second epoch after the end of idealism in the late 19th century. In addition to the 'big names', Herder, Hegel, Nietzsche, Freud and Heidegger, Kittler focuses on several not so well known authors from Constantin François de Volney (*The Ruins*, 1791) to Victor Hehn, who wrote in the 1870s on plants and pets (*Kulturpflanzen und Haustiere*, 1870). Of course Jacob Burkhardt and Johann Jakob Bachofen are mentioned as well as Wilhelm Heinrich Riehl, James George Frazer and Ernst Kapp's philosophy of technology. Kittler's focus is always on how the difference of nature and culture functions in these various works. After Hegel, the speculative hermeneutics of the interpretation of culture is replaced by the new paradigm of the analysis of positivist traces or remains as an archaeology and/or ethnopsychology of cultures. The discovery of everyday culture results, following Kittler, from a materialistic search for traces of all that German idealism was not able to conceive (Kittler 2001a: 120 ff.). Kittler, then, in a third big step, proceeds to cultural practices and, hence, to the question of the political – because culture is politics, as Nietzsche realized. These power fantasies are eventually replaced by ethnology and by psychoanalysis with their explorations of the motives and motivations of cultural or culturally influenced individual constellations or rituals. But with Heidegger's 'turn' (*Kehre*), this empirical paradigm in the studies of culture again turns into a 'Gigantomachy of Being' (Kittler 2001a: 216 ff.).

Skilful and rich in detail, Kittler reconstructs the cultural history of cultural studies as the emergence of long-lasting 'fables convenues': obsolete myths, conventions or presuppositions of what culture actually is. Beyond their individual logic of justification, all these myths have in common that they tend to block out the roles of technology and power and that they have preferred 'rules', meaning, 'peace' and harmony ever since Vico. They concern themselves with 'language and customs' and therefore tend to ignore chaos and wars of all kinds (Kittler 2001a: 39). Kittler's perspective can be interpreted as follows: if cultural studies is to gain new and crucial insights in a new and broad field of study, it needs to focus not only on the present but also on the sources of our present perspective. Kittler ended his lecture series in summer 2000 with an appeal: 'The appeal concerns knowledge of the historical emergence and fading of which … I have tried to give an account for myself and for you. Please do not discard occidental knowledge just because some professors from New York or elsewhere have now boiled it down to handy and marketable *Reader's Digests*' (Kittler 2001a: 248). This is a crucial plea for an ethos that Kittler advises us, the readers, to follow: do not give up consulting archives

and libraries if you want to be able to critically reconstruct the delicate conditions of culture.

Kittler's response to the cultural turn is significant in two respects. He does not simply go back to his old positions in order to reassert the primacy or priority of the inescapable power of media. Rather, foundational texts themselves are now regarded as medium and accorded a central role as turning points and determinants of the future. This is surprising. Kittler's own cultural turn is a return to the medium of reading. But it is no longer a question of treating the ever repeated work on texts as a repetition, continuation and confirmation of the exemplarity and concepts of the great authors and source texts that have shaped the idea and field of culture: now it is a question of reading that also registers the founding idea and constitution of culture, that is, all that has been excluded – power, the political, wars, and hierarchy. Kittler combines an analysis of power with an argument for a return to the classics of the notion of culture in order to recall what cultural studies is in danger of forgetting: that it is not a value-free space of meaning but a social institution, in which desire, the struggle to repress and power are active.

This ethics of reading, which draws implicitly on Nietzsche and Foucault, is a challenge addressed to nothing less than the future of our remembrance. What image of culture will we develop in the future? The future of the cultural turn lies, if we follow Kittler, not in contemporary readings or analyses but in what has always already determined these readings and analyses. This critical recall of the presuppositions of knowledge contains beyond Kittler's lectures a serious and important perspective, but one whose method of analysing power needs a more exact determination. Kittler is, however, following his own advice in his most recent and ongoing project in four volumes (Kittler 2006, 2009), which deals with the foundation and classics of all Western literature – the Greek alphabet, music, and myths of origin that founded both mathematics and art and thus science and culture as a whole. He has taken the cultural turn in the most literal fashion as the return to the beginnings of what determined our way of being and our culture.

Notes

1. '[Dass] alle kulturgeschichtlichen Zyklen von den Göttern zu den Menschen führen, ist zwar zum wohl erfolgreichsten Aberglauben geworden; sie ignoriert aber ganz systematisch die Möglichkeit, daß nach den Göttern und Menschen die Maschinen an der Reihe sind.'
2. Kittler does not mention any persons, relevant positions or introductions. For the German context, and neither lacking a methodological approach nor historical depth, I would like to refer to Bachmann-Medick (1996, 2006).
3. Here, the reference to sociology is owed to Niklas Luhmann's (1997) theory of social systems, in which culture is understood as the memory of society. The sociologist Dirk Baecker (2000), who was Luhmann's student, further developed culture as an agonal model: culture is not what society agrees upon, but what is argued about. For an overview on the discussion see Maye and Scholz (2011).

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Biographical note

Matthias Bickenbach teaches at Cologne University. He has published books on the history of reading with a focus on reading techniques, *Von den Möglichkeiten einer 'inneren' Geschichte des Lesens* (1999), on the internet as metaphor, *Metapher Internet. Literarische Bildung und Surfen* (2009), and on authorial photos in the evolution of media, *Das Autorenfoto in der Medienevolution. Anachronie einer Norm* (2010). His key research areas include media history and cultural techniques, the poetics of novels from the 18th to the 21st century, and Gothic discourse in Germany.

Thesis Eleven
107(1) 47–52

DOI: 10.1177/0725513611418032
the.sagepub.com

The disappearance of literature: Friedrich Kittler's path to media theory

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Abstract
This article follows the recurrent theme in Friedrich Kittler's 40 years of prolific academic writing, which is of course the media-related production of discourse. Five heuristic principles are identified in his work: enabling, reduction, historization, the abolishment of the 'two cultures', and post-hermeneutics. The paper closes with criticism of the intrinsic limits of Kittler's point of view.

Keywords
German Studies, Friedrich Kittler, literary criticism, media theory, ontology, post-hermeneutics

On 22 March 1982, in Berkeley, California, a young Friedrich Kittler looks out at the Golden Gate Bridge and fixes his gaze firmly on 'our hyper-realistic future'. With some emphasis he notes that readers and people in general are 'from now on subject to gadgets and instruments of mechanical discourse processing' (Kittler 1997a: 84). At this point in time, the postdoctoral professorial dissertation *Aufschreibesysteme 1800–1900* had already been submitted, if not yet accepted or published. In a piece of work which aimed at acquiring the *venia legendi* in German Philology, and which begins and ends with an analysis of *Faust*, we find, alongside the names of great poets, sentences which would strike anyone in German Literary Studies as unusual. Sentences such as: 'Technologically possible manipulations determine what in fact can become a discourse' (Kittler 1990: 232). So it is *not* the author of hermeneutics, the genius or the creator of original

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works, who determines what becomes a discourse. Kafka's text production, for instance, is not even about God or the father (who might otherwise determine what becomes a discourse) but rather about 'the modalities of the technological channels of information – cross-talk and delay, networks and noise-levels' (1990: 363). In order to understand Kafka's correspondence with Felice Bauer, one must understand how the mail and the railroad, the telephone and the telegram, the gramophone and the typewriter work. Kafka, too, is their subject.

Subject is to be taken literally here: something 'subjected'. Media are not instruments and tools in the hands of sovereign lords or authors, but rather the terms of our subjectification. Who we are is dictated by our *Leitmedia*: programmed. 'For one writes – the "under" says it already – as a subject or underling of that company which develops and markets the operating system' (Kittler 1997a: 156). The 'humanist premise that language is realised in conversation and the conversation in the human being' is turned on its head in Kittler's hypothesis that the human being is not realized in conversation, but rather vanishes. And this 'disappearance of the human being' does not 'stop at language but has always been incalculably perpetuated through scripts and media' (Kittler 1993: 150). Languages, media, news technologies, systems of media clusters – they all share the characteristic that they 'capture their subjects' (1993: 149).

The answer to the question of 'whose subjects, and that means whose subordinates' we are, is provided by Kittler with reference to Jacques Lacan, who replaces Freud's subconscious with 'gadgets and instruments' from 'microscopes to radio and television', whose 'subjects' (1993: 53) we ultimately are. Kittler's media theory adopts and radicalizes the structuralist conviction, shared also by Lacan, that all 'interhuman reality' is structured by a symbolic order (Laplanche and Pontalis 1980: 440): it is not enough to claim that the symbolic is structured like language, as languages can only produce those realities which they are able to store, process and transmit (Kittler 1997b: 649). Every language, both natural and artificial, uses different operators, addresses and commands; every epoch realizes different possibilities of producing, storing, transmitting and processing data (1997b: 650). Greek is not German, as Kittler demonstrates by means of the Bible translation in Goethe's *Faust* (Kittler 1990: 7ff.), and the handwritten word is a different medium to its printed or digitalized counterparts. Media make a difference. And 'a medium is a medium is a medium. Therefore it cannot be translated. To transfer messages from one medium to another always involves reshaping them to conform to new standards and materials' (Kittler 1990: 265). To entrust a message to different media means to change it at the same time. A medial transcription does not leave a message unaltered. It makes sense to look at medial epochs from this perspective, to re-examine those historical aprioris, whose 'standards and materials' continually re-format the messages of the West.

The relation (here Kittler quotes Lacan) 'between man and the signifier' constitutes 'the moorings that anchor his being' (1990: 10). This relation is also maintained by media, and our being (or the historical human world, accessible to us in a specific situation) is dependent on the media clusters which first produce and manipulate Lacan's signifiers. Or in the words of another authority: the 'current conception' of technology as a 'means to an end' and a 'human activity' is false, for technology is in its essence the opening up of 'our human existence' (Heidegger 2003: 252). According to Heidegger,

technology is a 'way of revealing'; it opens a sphere of 'truth' (2003: 255). This is also precisely Kittler's premise. Our insertion into our existence can only be understood when we are familiar with the specific technology which causes this to occur. This is the context in which we must read the apodictic statement that 'nothing actually is, that is not switchable' (Kittler 1993: 152). We could call this in reference to Heidegger a media-ontological hypothesis.

In none of his texts does Kittler retreat from these fundamental convictions regarding the generation of both meaning and world through media, or the subjectification and subjugation of the human being. On the contrary, they are even further radicalized. For not only 'from now on' (in other words ever since the computer first began its victory march at the end of the Second World War) have we been subject to the media clusters surrounding us, but rather since the introduction of the Greek alphabet. 'What remains of people is what media can store and communicate', Kittler declares in *Gramophone, Film, Typewriter* (Kittler 1999: xl). And 'what is' in any given situation (like Foucault with his a prioris, Kittler always thinks historically) depends on the specific state of the media. This hypothesis establishes a first epoch in the new 'interface' of the Ionian vowel-alphabet (Kittler 2003: 637) and progresses through the 'printing presses or main-frame computers' (Kittler 1999: xl) all the way up to the internet (1999: 1ff.).

So it is not the 'general digitization' which first gave us the sounds, images, voices and texts as 'surface effects, known to consumers as interface' (1999: 1), but rather the alphabet. For, according to the conviction which informs Kittler's most recent works on antiquity, 'in early Greece the phonetic alphabet already [amalgamated] language, music and mathematics – something which would only be achieved again by the computer over two millennia later' (Winthrop-Young 2011: 576) For Alphas and Omegas do not only record 'speech sounds' but also 'integers', 'singing voices' and the 'pitch of citharas' (Kittler 2006: 292). With one single system of notation (or 'discourse system') the Greeks, blessed by the muses, could therefore capture epics and tragedies, numbers and operators, melodies and pitch (2006: 120). Accordingly, 'sound and image, voice and text' have not reached us as consumers through one single medium only since the 'general digitization' (Kittler 1999: 1), but rather ever since antiquity.

What remains, however, is not what the poets bequeathed but what was written down. And what is written down, be it mathematical laws, verses, music, poems or dialogues, always has a direct relationship to the medium in which it is written – or, more precisely in Kittler's sense, to the medium which writes itself. Kittler rejects the idea that media are channels through which poets send their messages, calling it self-aggrandizement on the side of the poets (Kittler 1990: 265ff.). That 'media determine our situation' is as true today as it was 2500 years ago (Kittler 1999: xxxix). Yet not the media alone. There is also the discursive reduction of what might be possible: 'No discourse ... can manage without authorized controls. In no culture is the dice throw of discourse not steered and curbed, checked and organized' (Kittler 1990: 16). What refers here to Goethe's Faust, who cannot translate the Bible into all conceivable variants, holds since biblical times: 'The immortality of the Gods – to continue speaking with Foucault – derives very simply from a discourse regulation. Discourse rules do not only dictate which sentences can be formed from which elements, but also which sentences must be omitted' (Kittler and Vismann 2001: 18). And this has held true from antiquity up to the 'protected mode'

of computer chips, whose access-protected systems of binary digits not only enable 'what the system is permitted to do', but also dictate what the 'user software is forbidden from doing' (Kittler 1993: 214).

From this brief overview we can perhaps derive five central hypotheses, which pervade Kittler's writings throughout four decades:

1. *Enabling*: Media open up our existence. From the Gods and heroes, geometries and laws of ancient Greece to our virtual worlds of media clusters – it is media which enable 'what is', or also what is simulated or feigned. All 'sense perceptions had to be fabricated first', and this occurs through media (Kittler 1999: 3).

2. *Reduction*: Not everything that could be possible actually comes to be. Discourse rules dictate what may not be said or what cannot be calculated. Media need not be viewed only in terms of the possibilities that they open up in order to provide the 'senses' with 'eyewash' and 'glamour', or to produce 'interface effects' (Kittler 1999: 1, 2). The 'domination' (p. 3) of technical media is only what it is because it also reduces. Power is inherent to media.

The 'task bequeathed by Foucault' of the 'analysis of power systems' is taken up by Kittler and re-formulated: the task is 'no longer, as is customary, to seek to think of power as a function of society, but, in reverse, to construct sociology from the perspective of chip architectures' (Kittler 1993: 215). Along with Foucault, Kittler conceives of power as reduction and, with Carl Schmitt, as the control of its 'access conditions' – something which holds as much for the 'antechamber' (p. 215) as it does for the 'privilege levels of a microprocessor' (p. 215) or a symposium (Kittler and Vismann 2001: 67ff).

3. *Historization*: Kittler conceptualizes media techniques and discourse rules concretely and historically. He names both time and place of their appearance. He never speaks of *the* media, but always of specific media (Kittler 1999: 2). This holds equally for the role of war as the father of all things and all media: surface-to-air and aerial combat produce different media clusters than trench warfare or Blitzkrieg do. The concrete analyses are always, to use the fashionable word, *situated*. In the same manner, Kittler never speaks of *the* power, but always of the rules of empowerment and reduction at work within a specific culture. His media-archaeological program states: 'Instead of seeking to simply grasp all the inscription operators existing today, it would be more prudent and methodical to first begin their archaeology and to examine when and for what purpose a specific operator was introduced, and also when and why it did not exist' (Kittler 1993: 151).

4. *Abolishing the 'two cultures'*: In the introduction to the English edition of *Optical Media*, John Durham Peters correctly notes that Kittler is an 'enemy of the notion that there is such a thing as "the two cultures" of sciences and humanities, as we say in English, or "Geist und Natur", as they say in Germany' (Peters 2010: 2). Media, cultural techniques, systems of notation not only enable and delimit what is regarded as literature or the fine arts but also the fields of mathematics, physics or chemistry. Not only poems and epics are written with alphabetic characters, but formulae and numbers as well. For Kittler, ignoring this was one of the humanities' most disastrous mistakes, something which prevents their knowledge of the most fundamental objects. This is why the first chapter of *Discourse Networks* (1800) begins with an equation by Euler, and the second

(1900) with an algorithm by Balzano (Kittler 1990: 2, 175). The fact that Goethe of all people disrupts the media-technical unity of mind and nature is something that Kittler begrudges. He quotes and comments on one of Goethe's letters to Karl Friedrich Naumann from 24 January 1826, in which the poet writes:

> Here I am at the limit which God and nature has assigned to my individuality. I am compelled to depend upon word, language and image in the most precise sense, and am wholly unable to operate in any manner whatever with symbols and numbers which are easily intelligible to the most highly gifted minds. (in Moritz 1958: 158)

In a treatise by Naumann, Goethe's 'here' marks the 'limit' between word and number, image and symbol. Goethe fails to continue reading because he wants nothing to do with symbols and numbers. To this Kittler comments: 'This sacred but disastrous alliance of language and image, God and nature, father and mother has been the foundation of the humanities to this day' (Kittler and Vismann 2001: 137).

The humanities have followed Goethe and stopped reading as soon as words and images become numbers and symbols, although both numbers and symbols on the one hand, and words and images on the other, share a common history which Kittler traces back to antiquity in his most recent texts. In many of his works Kittler demonstrates, using some of the 'sacred' texts of the humanities and cultural studies, how the 'excluded' (p. 137) numbers and algorithms re-enter and help write the text.

5. *Post-hermeneutics*: Kittler has favourite authors, Thomas Pynchon for instance. Others authors such as Goethe, E.T.A. Hoffmann, Benn and Jünger are frequently quoted. Or to put it more precisely: there are certain passages which are frequently quoted. These are those passages which deal not with 'word, language and image', as Goethe supposed, but *contre coeur* with numbers and symbols. The thesis that, media reflexively, even literature has always been subverted by a separation into 'two cultures' leads to strict selectivity and to a terrible awkwardness. For Kittler a little piece by Arno Schmidt ('Offener Brief' from 1985) becomes a statement about literature in general. To Schmidt's cryptogram (' 8 c 357 8xup ZEUs! id 21v18 Pt 7 . . . ') Kittler remarks: 'Under the conditions of high technology, literature has nothing more to say' (Kittler 1999: 263). Well, actually it does, but what it otherwise has to say cannot be formulated as an observation of its media-technical preconditions. Thus it becomes uninteresting to Kittler. Whatever cannot be conceptualized as an observation of switching, operators and media lies outside of Kittler's focus and, accordingly, has no place in his otherwise broad oeuvre. For the same reason, we find no complete interpretation of one entire work, but only analyses of specific passages. This is only consistent for Kittler leaves this particular hermeneutic category behind him. On the other hand, we can say: he has no choice. His method is not suited to one single work.

In one of his seminars in Bochum, Kittler once tore up a Reclam booklet in order to analyse individual pages without looking at the context. This grandiose renunciation of the tradition which requires two readings of any work, first the cursory reading and then the detailed perusal of individual passages, owes itself to a theory which can demonstrate its general media-historical theses only by means of selected passages of text. Of course, the reader of Kittler's works comes to know a great deal about these passages.

Translated by Dale Adams, Melbourne University

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Thesis Eleven
107(1) 53–65

DOI: 10.1177/0725513611418039
the.sagepub.com

Kittler's optic: Visual theory between hardware, strategy and style

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Abstract
The article situates Kittler's view on the question of visual technology within his general media theory and critically examines Kittler's optical paradigm with regard to questions of (visual) technology, discourse, strategy and style. Focus is given to the link between visual technology and the Renaissance period.

Keywords
academic style, camera obscura, optics, Renaissance, technical images

> And he went on to talk about a well-known lithograph which showed the entire royal family engaged in edifying occupations: Louis-Philippe had a copy of the Code in his hand; the Queen a prayer-book; the princesses were doing embroidery .... This picture, which was entitled 'A Good Family', had been a source of delight for the middle classes, but the despair of the patriots. (Flaubert 1964: 62)

> It seems to me that this straightforward text needs no interpretation, but I would like to emphasize two points: first, it shows how effectively the politics of images functioned after the switch to indefinitely reproducible and printable lithographs, and second it shows that media have repercussions on what they represent. In the mass medium of lithography, the royal family cast off all of its sovereign attributes and aligned itself with the mass of French bourgeois families. (Kittler 2010: 138)

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Kittler's comment on a passage of Flaubert's *Education sentimentale* makes a good point of departure to comment on Kittler's *modus operandi*. Firstly because the passage, which is taken from a literary text, against the disciplinary grain of philological studies, is apparently in no need of interpretation. The German original here speaks of 'Klartext',[1] one of Kittler's preferred metaphors when addressing the apparent obviousness of a technique a priori. Secondly, Kittler's comment that he only wishes to 'emphasize two additional points' certainly does not stand in the way of 'Klartext' but rather stresses the obvious to strike the blind reader, who in Kittler's case is assumed to be a 'philologically trained' reader and as such lacks interest and hence understanding of technology in general. This in particular should be kept in mind, because one of the strengths of Kittler's writing is to make technology 'speak' as if it were literature. Hence a warning is hidden in (t)his comment: if literature can be 'Klartext', academic writing can often be in dire need of interpretation. Thus the challenge Kittler's texts pose is also the reward they promise.

I. Media

To begin with, I would like to frame Kittler's approach to visual media within its general theoretical setting as it pertains to:

a) the question of technology,
b) the question of discourse,
c) the question of strategy, and
d) the question of academic style.

This is no attempt to mirror Derrida's fourfold philological framing of painting (Derrida 1987). The fourfold approach here is more of a technical coincidence.

Ad a) Ernst Kapp, who has been credited with coining the term philosophy of technology ('Technikphilosophie') in the 19th century, freed the question of technology from being a mere adjunct to the seemingly more impressive concepts in German philosophy at the time such as 'labour' (Marx), 'Geist' (Hegel), or 'Bildung' (Humboldt, Schiller), and gave it centre stage with reference to the human condition. With Kapp, every invention of technology becomes an unconscious organ projection ('Organprojektion'), which in hindsight finds its rationalization; and this has to be true not only for tools and machines but also for systems (Kapp 1877).[2] Pivotal initiators of 20th-century media theory – Walter Benjamin, Harold Innis or Marshall McLuhan – have never abandoned Kapp's anthropological set-up per se. Kittler's theory, on the other hand, sees no need to couple the questions of technology and anthropology. His observations mostly pertain to technologies as self-referential objects, which take place and occupy these places, so to speak. And Kittler's descriptions of how these occupations take place precisely reflect the strength and originality of his commentary.

With reference to the question of visual media and their discourses, we shall see that it is the imposition of the optical paradigm on all things visual which rules over visual form in general. This imposition coincides with the technical invention of perspective and the camera obscura as facilitators of the optical paradigm. And the optical paradigm thus

replaces the paradigm of the image, and with it, the history of the image as it has always been told, and consequently been subjugated by words – as seen in the historiography of painting, for example. At the same time the optical paradigm, as we shall see, is complicit with the overriding digital paradigm as focal point of all media theory today in that both abandon any notion of the relevance of visual 'content' and therefore any historical master discourse about such 'content'.

Ad b) 'All libraries are discourse networks, but all discourse networks are not books. In the second industrial revolution, with its automation of the streams of information, the analysis of discourses has yet to exhaust the forms of knowledge and power' (Kittler 1992: 369).[3] Kittler follows Foucault in arguing that knowledge is essentially connected to power, or more seemingly simplistic: is also always a form of power in itself. But while Foucault's archaeology is limited to the textual paradigm, the technology of print, Kittler's focus shifts to the informational paradigm of data processing. According to Kittler, the digital realm has now occupied the spaces which encompass knowledge and power. That has two implications for Kittler's optic: firstly, optical media today are also primarily subjected to the digital paradigm, which is a non-discursive paradigm. And, as such, visual forms are facing the same fate as textual forms, that is, these former entities have now been dissolved into the digital realm, their respective content as such has become irrelevant (viewed from the technological perspective). And therefore secondly, the traditional difference between word and image needs to be re-addressed within and beyond the fact that they share the same digital platform. Foucault's library as paradigm for discourse praxis had differentiated and combined word and image,[4] whereas Kittler's digital paradigm needs to re-address the difference between the visual forms of pictures, texts, diagrams, or mathematical formulae – simply because these differences, hidden by technology today, are at stake. In other words, the difference between meaning and technology is always at stake in Kittler's commentary while at the same time being commented on.

Ad c) One way to address these tensions is to focus on Kittler's use of the term strategy. Not only are media linked to political or military strategies to the point that Kittler describes a technical medium at times as an unintended by-product of military development, but his own history of communication media is strategic in that the philologist Kittler has shifted his interest to the media theorist Kittler, a move which is reflected in his historical narrative of media itself: the distinction Kittler draws here between the history of scripture (from manuscript to print) and the history of technical media (from analogue to digital) (Kittler 1993: 172) revisits Kittler's earlier attempts to shift the discipline of philology from hermeneutics to discourse analysis (Kittler 1980). Consequently this strategy has its equivalent in reference to visual media: the excess of hermeneutical interpretation in philology is much the same as the excess in pictorial interpretation, most notoriously in the hermeneutically disciplined style of art history; in both cases the materiality of communication is lost in the hermeneutical approach. There is no 'divine act' of interpretation of either words or images, or in philosophical terms, there is no 'thought' about words or images without the respective medium imposing its form onto that 'thought' and thus becoming that 'thought'. Kittler's strategic interest here is not aimed simply at traditional forms of literary criticism in order to do interpretative justice to aesthetic objects but – as we shall now see – to do justice to the form of academic commentary itself.

Ad d) Traditional hermeneutic perspectives have predominantly stressed style[5] as a formative power to guide the process of interpretation of words and images, so if we know a particular style of painting or literary text we have a frame within which possible meaning about the aesthetic object can be constructed (cf. Luhmann 1986). And the contingency of any critical interpretation was thus limited by the notion of style itself. With Kittler the question of style now becomes a derivative of technical media. The change of styles in literature after the First World War (after the 'victory' of modern media) now depends on technical forces ('technische Mächte'). Literary style is a direct function of available channel capacities ('direkte Funktion der verfügbaren Kanalkapazitäten', Kittler 1986a: 361). The competition between media regulates the new positioning of old and new media: new media do not make the old media obsolete, but they allocate new positions to them.[6]

Kittler's description of new dependencies between old agencies – literature and technology – thus brings with it a change in academic commentary, which cannot be immune to the impact of media technology on itself. Where literature had once occupied the space of positive uncertainty, technology has taken over. Not literature – as Paul de Man put it – is deconstruction but technology, one might say, reading Kittler's texts. The undecidability between literal and figurative meaning, which has been a fundamental marker for the recognition of literature, it seems, has now been occupied for Kittler by the question of technology: good technology is technology where literal and figurative meaning are in a state of indecisiveness. That is the style, the power whereby the meaning of technology and the technology of meaning become endlessly converted into each other. And thus a reader of Kittler should always be alert to the 'power play' that where Kittler speaks of strategy his own text becomes strategic, where he speaks of cryptology his text becomes cryptic. In short: theoretical concepts are also always stylistic devices to the credit of self-referential awareness in relation to Kittler's theoretical approach. Kittler has always been not only a code breaker, as baptized by close colleagues (Berz et al. 2003: 12), but also a cryptic encoder.

II. Optical media

Kittler has addressed the question of technology and visual media in two major publications: *Grammophon, Film, Typewriter* (1986) and *Optische Medien* (2002). The earlier text set the tone: 'How what is written in no book came to pass may still be for books to record' (Kittler 1999: x–xi).[7] The German original notes that books may be 'just' capable of recording what is not meant any more for books. The English translation changes the text to 'still' be capable of recording what is not meant for books any more. But 'just' seems adequate since digital data have eroded the paradigm of the printed word and subverted any older technology of scripture. Hence, and in a swipe against McLuhan, Kittler adds that 'understanding media' is impossible because today everything is remotely controlled by information technology (Kittler 1999: xi; 'Nachrichtentechnik', 1986: 4–5).[8] Books might just take notice of that, but to understand this as a hermeneutical act has become superfluous, or simply inadequate and therefore plainly wrong. This form of subversion directed against a 19th-century style philological tradition forces Kittler's own attempt into a paradox – writing about the un-writeable.

This paradox between media is also applied to the visual medium 'film', which right from its inception is described by Kittler as a 'manipulation of optic nerves' (Kittler 1999: 115). And the cut and edit technique further erodes the history of film as a medium itself, since cutting is the beginning of 'visual data processing' (p. 117) and thus opposes its own account being delivered through another medium: that of the printed word. Another pivotal parallel Kittler draws at this point is that of the simultaneous development of film camera and automatic weaponry (p. 124). This suggested historic development is as strategic as Kittler's comment itself, as we shall see later. To borrow a term from Musil's *The Man without Qualities,* Kittler's 'parallel action' between historical and theoretical strategies in relation to film will also feature prominently in his book on optical media in general. I will concentrate on *optical media* as the overriding paradigm in the following, and return to the fourfold framework set out at the beginning of this article.

Technology A

> To express it in one sentence: today images are transmissible; however, over the course of history images, at least in principle, could only be stored. An image had its place: first in the temple, then in the church, and finally (to Heidegger's dismay) in the museum. And because this place – according to Benjamin's theory of the aura – was far away – perhaps even 'the unique phenomenon of a distance', there was at best a possibility of a museum visit or an image trade and at worst the possibility of an image theft. (Kittler 2010: 47)[9]

Literature, on the other hand, contrary to the processes of image-making, has always also been transferable ('übertragbar') via the earlier development of copying technologies: thus literature, Kittler laconically remarks, has always also been posted texts (postal service). From this technological point of view there is no difference between a bible and a postcard. The same testament Kittler wishes to deliver to the making of images[10] – but strictly speaking only the invention of photography will finally allow pictures to be transferable, to become postcards too. Everything else is *avant la lettre*. Despite this technical *factum* the Renaissance will take centre stage in the narrative on 'optical media', and with it another apparatus is given the responsibility for shaping optical media in general: the camera obscura.

As is to be expected, the start of Kittler's investigation into visual technologies is not to ask how pictures signify, what they signify or how these processes of signification vary through history and through different contexts, but to ask what technology within the realm of vision means and how the technologies themselves impact on the process of generating meaning as visual forms. Pictures per se in this frame become irrelevant – they gain relevance only as possible condensations of a technological a priori. While Hegel in his aesthetics still distinguishes between different visual forms by applying the distinction between form and content to different art forms through the history of architecture, sculpture or painting and thus arriving at a meaning of visual forms themselves, Kittler leaves no doubt that meaning in visual media is not something that can be obtained by looking for a particular visual content in relation to form.

The difference Kittler's text sets up here is one between optics and images. Thus within Kittler's narrative[11] optics is not limited to pictures but pictures have to adhere to

optics, and the intended hierarchy of this asymmetrical distinction becomes obvious. Kittler's account of the history of visual media is a history of optical media only, as the title suggests, and not of visual culture. Hence his account is not one of societal meaning 'we' produce by 'using' optical media but rather, at best, an account of how optics, as a strategic bundle, imposes what is meant by words such as 'we' or 'usage'.

The historical take-off for optical media is the Renaissance. While Kittler mentions Euclidian optics, Arabic apparata (camera obscura) and makes reference to antique and medieval theories of vision, it is the 'revolution in vision' in the Renaissance which provides the platform for Kittler's narrative of optical media as paradigm. The 'revolution' of vision that starts his narrative is due to two technical inventions and a 'black box': although, according to Kittler, the inventions of weapons and the camera obscura enable the introduction of the linear perspective, we have no empirical evidence to support this hypothesis.[12] 'Klartext' is missing here. And it is Brunelleschi who provides the missing link for Kittler between Roger Bacon's descriptions of the camera obscura and military weaponry and Leonardo's technologically implemented model of the camera obscura. Brunelleschi is the 'black box' between these two white boxes precisely because we have no proof and can only assume (via circumstantial evidence) that he used a camera obscura to produce his first perspective paintings (Kittler 2010: 59–61). Ironically, it is just such a black box that functions as 'Klartext' here.

In any case, what Brunelleschi's first perspective drawings do prove for his time is that the human eye works in much the same way as a camera obscura: both are centred around a hole through which light produces images, either at the opposite side of a dark room or the 'dark' side of the human pupil. Kittler then deduces from this technological a priori that it is this mathematical eye which replaces God's eye. While God's eye had made man in his image as a cultural imperative, the mathematical eye makes the adoration of pictures ('Bilderverehrung') obsolete and replaces it by the analysis of pictures ('Bilderanalyse').[13] The technology of perspective and the mathematical eye thus make all Christian iconography superfluous through analysis of its components, i.e. the points, lines, and spaces of the image. At the same time Kittler points out that uncanny similarities can be found in parallel developments: the dissection of the Bible in printable letters and the dissection of the human body through 'gunpowder' (2010: 57–8).

Discourse B

With Brunelleschi as black box – fed by images produced by a camera obscura and spilling out perspective drawings – a beginning is marked. From here Alberti takes centre stage in providing the mathematicization of perspective and thus of every visual form, according to Kittler. Following Brunelleschi's process of imitating nature by copying the image that a camera obscura projects, the process of image-making in general still had been limited to 'real' objects. Alberti's treatise on painting now replaces the model/metaphor of the camera obscura by his invention of the 'window' (*fenestra apperta*). Alberti's window, which allows for geometric rules to be strictly applied following the gridlines within the window frame, opens up the possibility of painting virtual objects too.[14] Beyond this observation Kittler has no further interest in Alberti's treatise.

Whether its structure is taken from humanist rhetoric (and for what purpose) or whether its central concept of *istoria* is to be taken as the surplus of meaning, which is produced by paintings in relation to their technical-rhetorical part of *compositio,* is irrelevant for Kittler's argument. Instead Kittler follows Alberti's second groundbreaking project, one that art historians usually don't take into account at all, that is, Alberti's invention of modern cryptology by applying mathematical principles to the coding-encoding process of messages. From here Kittler's narrative follows the historical markers one can expect, from the apparatus of the laterna magica to the metaphorical implementation of images in the literature of romanticism and philosophical phenomenology. But these 'illusions and shadow images' (2010: 116) or the images of 'Ghost-Seers' (2010: 98) will finally have to give way to the invention of the 'real' new image delivered by a 'real' technology that produces the type of image which at the beginning of Kittler's narrative was defined as transferable. And it is the technology of photography which not only provides us for the first time with such pictures, but also marks the beginning of the end of the paradigm of a textually defined history of pictures in general.

So what discourse is at stake in Kittler's narrative? And what is Kittler's construction offering instead? Noticeable from the start is what is excluded in Kittler's grasp of optical media. The Renaissance produced an endless discourse in which image and word, technology and meaning, are negotiated. While Kittler offers a cohesive shape for the latter distinction, I would like to remind the reader of other pathways the Renaissance period created for contextualizing visual media. As previously mentioned, Alberti is the initiator of mathematicizing image and word, and also the disseminator of scholarly knowledge on the relation of rhetoric, imagery and philosophy to a wider non-Latin reading audience. As such he also plays a central part in the development of the *paragone*-genre in general – the *trattato della pittura*, the dispute between painting, poetry and sculpture – which will give rise to art history through the commentaries of Giorgio Vasari.

Parallel to and often entangled with the artistic discourse, a large number of books about medicine, optics, astronomy and engineering used images, graphics and diagrams to illustrate and explain their theoretical problems as well as trying to establish a particular form of knowledge that had consistently been neglected by the universities: knowledge produced by the mechanical arts in general (Stafford 1994). This knowledge threatened the monopoly of the church in all matters pertaining to the canon taught at universities. In particular, the intellectual battles fought by iconoclasts to ban pictorial representations of holy icons that produced a highly polemic and interesting literature on the meaning of visual representation in relation to words can give testimony to this (Schnitzler 1996). Also in the realm of philosophy in general a revived tradition of rhetoric and ars memoria as well as neo-platonic positions produced a complex discourse on mental images, figures of speech and visual topoi – all of which again address the distinction between visual form and word (Schmidt-Biggemann 1983; Rieger 1997; Neuber 1993). 1501 also saw published the first monograph about imagination by Pico della Mirandola, which started a debate on image and psychology *avant la lettre* (Mirandola 1997).

And the quest to link image, memory and ethics produced of course the bestsellers of the time: the emblem books. Images played a further part in the realm of political representation; visualizing political power, for example, in currency, fire-works or

processions became an important factor in gaining and stabilizing political power (Fähler 1974). All of these discourses sparked interest in intellectually systematizing the various debates: in 1673 Claude François Menestrier tried to work out a systematic analysis of the most important internal and external images, how they could be related to the different capabilities in human understanding, and in the second part of his book *Le veritable art* he tried to analyse the production of knowledge in every faculty with the aim of proving that all knowledge is derived from thinking in images (Menestrier 1981).

None of the above mentioned discourses plays a role in Kittler's narrative. When addressed at all, Kittler makes them speak through technology: whether religious propaganda (Kittler 2010: 72) or poetry of the Enlightenment (p. 89), every aspect of cultural production Kittler traces back to the technical aspects of optical media. And the reason why that is not only a possible description but the desired one seems to be best summarized in a swipe Kittler again takes against hermeneutics in general: 'rather we will stress that the number of drawings and images generated with the aid of the *camera obscura* is probably beyond the wildest dreams of a hermeneutic theory of art' (p. 63).

Against the hermeneutic inauguration of the modern subject as authority and source of all things understandable, subjects are subjected to the media: 'Nothing against this mixture of power and powerlessness, the sublimity and absurdity of people according to Freud and McLuhan; but their unquestioned assumption that the subject of all media is naturally the human being is methodologically tricky' (2010: 30).[15]

Kittler's discourse needs no subjects to get things going. He constructs a discourse where hermeneutical and anthropological concepts meet technology on its own ground. So that it is not the hermeneutical question which gives technology its place in 'understanding the world we live in' but rather technology that speaks for itself and thus makes hermeneutical concerns at best an adjunct to its own modus operandi. But how does technology speak, metaphorically speaking?

Strategy C

Despite Kittler's rhetoric of a technical a priori and its imposition on all things cultural, he explicitly doesn't advocate a linear progress of scientific technology (2010: 72). His writings don't allow for the understanding of a technical object as a pure theoretical construction either. And that is because theoretical concepts, Kittler hints, could be the result of media developments themselves:

> . . . whether the basic concepts of current theories are absolutely independent and thus true frames of reference or rather a direct result of the media explosion of our own epoch. Lacan's notion of the symbolic as a syntax purified of all semantics, meaning, degrees of figuration, and thus also every conceivability could in the end coincide with the concept of information in telecommunication. (2010: 41)[16]

Kittler is vague here: theoretical concepts could be a result of media but they might not be. This indecisiveness is strategic. Kittler arrives at this point by looking at in-formation as 'the basis and goal of all technical media' (p. 41) and as a replacement of the older philosophical concept of form. While form was coupled with matter ('Materie'), information is data without being bound to matter. The example Kittler chooses here to

demonstrate the impact of information over form and matter is taken from the history of photography. In 1859 Oliver Wendell Holmes suggested that the crucial point of photography is that there is no further need for matter to exist after a photograph (is taken): 'Pull it down or burn it up, if you please' (p. 41). Kittler extrapolates from here without further proof that the 'chemically pure information' that photography 'is', is also already a 'correlate' of 'chemically pure destruction' (p. 41). In other words, the term 'information' for Kittler carries always a strategic component in itself – and for that reason it is no coincidence that our century of media technology is also the century of technological warfare.

What role does this fundamental and strategic concept of information play for the Renaissance in Kittler's writing? His strategic point of departure has been the threefold *spectacle* of perspective, book print and gunpowder, a Holy Trinity. All three inventions dissect an apparent whole (in hermeneutic terms) that images, texts and human bodies seem to have represented. Then one might call Kittler's set-up of the optical paradigm in the Renaissance strategic because it reflects the overall breakdown of form into information *avant la lettre*: while images, texts and gunpowder are still bound to matter, their understanding also as 'data' *avant la lettre* enables Kittler's narrative to open up new directions and ignore traditional pathways from the outset.

Thus the strategic set-up itself leads Kittler to investigate Alberti's role in inventing new cryptic systems rather than placing him within a well-controlled context of art history. Rather, Kittler wants the traditional approach to be at stake and to fail in this respect. And it is Alberti, in turn, who figures as witness for Kittler's own project: 'Alberti transferred the coldness of numbers to the sacred realm of the everyday grammatical sense of semantics' (2010: 65).[17] What Kittler's passage here reveals is that Kittler's texts themselves want to be read as the ones which first introduced the cold objectivity of counting into the realm of philology (and art history in this particular case). As much as the concept of information is strategic in general, Kittler's texts are strategic in every single case. That is their style: technology is deconstruction.

Style D

When it comes to Kittler's writings, the question of their own academic style – between cryptic and 'Klartext' – has not yet had sufficient attention that would allow us to go beyond the rhetoric of accusation from his critics or the admiring imitation of his followers. But looking at style in the future might just shed a little more light on the layers of meaning his texts carry within them, while at the same time denying they exist.

Winthrop-Young has observed the prolific use of adverbs as markers for 'Klartext': in this way Kittler's texts seem to reduce complex questions, which are usually groomed in the fields of philosophy and the mind, to the apparent simplicity of a technological framework. But technology in itself is just not that simple. Kittler's texts here rely on the lack of interest and knowledge of technology one might expect in academic circles within the humanities. As such, Kittler appears as a debunker of the hyperbole that one can find in a certain type of discourse in the humanities (Winthrop-Young 2005: 68–9). Why then should we read Kittler's debunking polemics? For starters, Kittler's approach introduces new genres of texts to challenge the cultural canon. These texts not only give rise to different perspectives (with reference to the necessary blindness) towards our

canonical frames within the humanities but also offer re-readings of canonical texts, which are now guided by 'Klartext' texts and as such open up every terminological crust that has 'subliminally' set on research methods, if they are not questioned at times at their most basic level.

Let's address Alberti here one last time: his central role in the development of cryptic systems – something that most commentaries within art history probably fail to mention for the seemingly obvious reasons of disciplinary constraints – makes re-reading the roles of *istoria*, the central and most enigmatic concept of Alberti's treatise, and *compositio*, a new use of the term Alberti introduces to the process of image-making at the time,[18]a very different endeavour. Alberti's text, which proposes to the reader that it is written as 'Klartext' (without ornatus/eloquentia) (Alberti 2000: 231), becomes, if we start our reading with Kittler's eyes, an exercise in learning how to turn the inside out: *istoria* then is no longer restricted to being the content of a *compositio* and as such is no longer the pivotal element through which meaning in a picture is generated. *Istoria* might be taken literally as the cryptic part of any picture or might even be extended towards a definition of pictures at the time as cryptic (technology) per se. Alberti thus becomes the debunker of the notion that every picture is just a lesser version of biblical words, hence a debunker of overzealous biblical words.

Thus pictures, as they do not adhere to the supremacy of the word any more, become a cryptic language within themselves. While traditional analysis of images forces *istoria* to be defined by a biblical narrative, Kittler's optics allow for questioning the role of the image as *istoria* altogether. And this fundamental de-framing of canonical texts, metaphorically speaking, will always be a worthwhile benefit to a reader of Kittler's texts. Hence Kittler's assault on traditional discourses in the name of technology will always sharpen one's view of the technological aspects of discourses themselves and their respective shapes and forms.

The conclusion of Kittler's narrative will again prove just that point: no discourse without medium and vice versa. And like everything else, Kittler notes, optical media had to disappear into the computer. Film had been the last optical medium, television already has superseded the optical paradigm by consisting simply of electronic signals. And the circuits ('Schaltkreise') of a computer have finally swallowed optics altogether: 'For this reason, visible optics must disappear into a black hole of circuits at the end of these lectures on optical media' (2010: 225).[19] Kittler is Brunelleschi or Alberti or the other way around – it does not seem to make a difference in view of the latest technology.

Notes

1. The translation of 'Klartext' as straightforward (literally transparent) text – a spatial metaphor – loses the German original's allusion of 'Klartext' to 'Aufklärung' (enlightenment).
2. Kapp's theory coincides with Luhmann's semantic analysis of the distinction between nature and technology, which had changed its hierarchy. Up to the mid-19th century nature dominated, since then it has been technology: from then on it is not nature but technology that separates chaos from order; and the sciences will interpret this change as improvement of their own performance (cf. Luhmann).
3. 'Nun sind zwar alle Bibliotheken Aufschreibesysteme, aber nicht alle Aufschreibesysteme Bücher. Spätestens seit der zweiten industriellen Revolution mit ihrer Automation von

Informationsflüssen erschöpft eine Analyse nur von Diskursen die Macht- und Wissensformen noch nicht.' (Kittler 1987: 429) Cf. also Kittler on print in *Gramophone, Film, Typewriter* (1986: 13), where he points out that print has always also been information technology, something Kittler accuses Foucault of having ignored.

4. Cf. the roles of Velásquez's *Las Meninas* or Magritte's *Ceci n'est pas une pipe* as commenting counterparts to linguistic discourse in Foucault (1966, 1977).
5. The notion of style in cultural criticism (and particularly in art history) coincides with the methodological rise of modern hermeneutics in the 19th century.
6. 'Neue Medien machen alte nicht obsolet, sie weisen ihnen andere Systemplätze zu' (Kittler 1993: 178).
7. 'Wie es dazu kam, was in keinem Buch mehr steht, ist für Bücher gerade noch aufzuschreiben' (Kittler 1986: 4).
8. 'Nachrichtentechnik' in German carries a very strong overtone of military technology (of intelligence and surveillance). The English 'information technology' is more neutral in this respect.
9. 'Um es in einem Satz zu sagen: Heute sind Bilder übertragbar, im Lauf der gesamten Geschichte dagegen waren Bilder, wenigstens im Prinzip, nur speicherbar. Ein Bild hatte seinen Ort, zunächst im Tempel, dann in der Kirche und schließlich (zu Heideggers Entzetzen) im Museum; und weil dieser Ort – nach Benjamins Theorie der Aura – ein ferner Ort war, ja vielleicht sogar die einmalige Erscheinung einer Ferne, gab es bestenfalls die Möglichkeiten des Museumsbesuchs oder Bilderhandels und schlimmstenfalls die des Bilderraubs.' (Kittler 2002: 48)
10. As with Benjamin, Kittler also attributes a 'Sonderrolle' (special role) to Gutenberg's invention of print as a medium, which sets all other media free (Kittler 2002: 78); in that respect pictures also act as 'postal service' prior to the invention of 'photography'.
11. That is until TV and the computer created images, which are no longer based on optics but on electronic signals or digital code. I'll return to this later.
12. The technology of perspective will catapult the West into its commanding position on the world stage while the position of China and the whole of the Asian region will drop, not having been subjected to the rule of perspective before the 19th century (cf. Kittler 2010: 69). There are of course countless other theories to explain the introduction of perspective, for example as a result of commercial and hence spatial mobility (Kaschuber 1988), by the rational progress of mathematical knowledge (Rehkämper 2002) or through discourse itself (Damisch 2010).
13. Cf. Belting's similar description of the difference between theological image and the new image as art form from a cultural perspective (Belting 2000: 523).
14. In his *paragone* Biondo, for example, wishes his imagined pictures to be painted in the future (1970 [1549]: 42–52); for the connection between the virtual and the window from today's state of visual theory see Friedberg (2006).
15. 'Nichts gegen diese Mischung aus Macht und Ohnmacht, Erhabenheit und Lächerlichkeit des Menschen bei Freud wie bei McLuhan; methodisch heikel ist die von beiden unbefragte Grundannahme, daß natürlich der Mensch das Subjekt aller Medien sei.' (Kittler 2002: 22)
16. '. . . ob nicht Grundbegriffe aktueller Theorien, . . . , vielmehr eine direkte Folge der Medienexplosion unserer Epoche sind. Das Symbolische bei Lacan . . . könnte am Ende mit dem nachrichtetechnischen Begriff der Information zusammenfallen.' (Kittler 2002: 38)

17. ‘Alberti übertrug als erster die Kälte des Zählens oder der Numerik ins heilige Reich des alltagssprachlichen Sinns oder der Semantik.’ (Kittler 2002: 75)
18. Earlier *compositio* was a term of reference in the context of the body (Cicero) or building (Virtruvius) (cf. Baxandall 1986: 130).
19. ‘Am Ende dieser Vorlesung über optische Medien muß deshalb die sichtbare Optik im schwarzen Loch von Schaltkreisen verschwinden.’ (Kittler 2002: 315)

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