The Interface Effect

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Introduction: The Computer as a Mode of Mediation

What Are New Media?

First a frank assessment: There are very few books on new media worth reading. Just when the nay-sayers decry the end of the written word, bookstore shelves still overflow with fluff on digital this and digital that. And even as a countervailing chorus emerged that was more skeptical of the widespread adoption of new media – in France Jacques Chirac once spoke disparagingly about "that Anglo-Saxon network" (for, as anyone knows, in the beginning there was Minitel) – it was evident that the Internet revolution had already taken place in the US, in Europe, and elsewhere. Like it or not the new culture is networked and open source, and one is in need of intelligent interventions to evaluate it. In the years since its original publication in 2001, Lev Manovich's *The Language of New Media* has become one of the most read and cited texts on the topic.[1] It is a key entry in the disciplines of poetics and cultural aesthetics, and has helped define the new field of software studies. So I will start with Manovich, deferring to the influence of the text, and betting that it might already be familiar to readers. The book is not without its limitations, however, and perhaps today we may begin to look again on the text with the fresh eyes of historical distance, and, using the book as a springboard into other topics, reassess many different aspects of cultural and aesthetic life, from our tools to our texts, from our bodies to our social relations, from our digital objects to our digital interfaces.

Internet culture spawned *The Language of New Media*, particularly the first generation of 1990s web culture. What this means is that the book is the product of a specific sliver of history when the conditions of the production and distribution of knowledge were rather different than they are today. What was once a subversive medium is now a spectacle playground like any other. The first phase of web culture, one must admit, carried a revolutionary impulse; call it the Saint-Just to today's imperial era. Manovich's book is a product of that first phase. Walls were coming down, hierarchies were crumbling, the old brick and mortar society was giving way to a new digital universe. On the one hand, new virulent ways of looking at the world were forming with unprecedented ferocity – sometimes conveniently labeled the "California ideology" – coalescing around the neoliberal impulse to open source everything (information wants to be free, desire wants to be free, capital wants to be free) and the promise to liberate mankind in ways only dreamed of by our forebears in the new social movements of the 1960s. On the other hand, amid this process of leveling, a new Republic of Letters began to form using email and bulletin-board systems that seemed to offer a real intellectual and social community devoted to the exploration and critique of new media. *The Language of New Media* is a product of this community. Discussed and refined in online forums like Nettime, and partially previewed prior to publication on the email list Rhizome (a web site named enthusiastically, if naively, after the emancipatory topology described in Deleuze and Guattari), *The Language of New Media* was written for, within, and against the new Internet culture of the late 1990s.

Looking back like this is not to suggest that we should dwell on previous decades with nostalgic yearning for a simpler time, nor that Manovich's book has nothing more to say to us today. On the contrary, the simple premise of the book – that new media may be defined via reference to a foundational language or set of formal and poetic qualities identified across all sorts of new media objects, and indeed across historical and social context – suggests the opposite approach: we are *required* to think critically and historically because of the very fact that the digital is so structural, so abstract, so synchronic.

Manovich's strength lies in the description of digital technologies as poetic and aesthetic objects. His book aims to be a kind of general textbook on new media. Manovich begins from his own experience with software, then he extends his observations so that the "telling detail" becomes a piece in a larger system.

Is Manovich's view on the world a modernist one? I think so. His is a modernist lens in the sense that he returns again and again to the formal essence of the medium, the techniques and characteristics of the technology, and then uses these qualities to talk about the new (even if he ends up revealing that it is not as new as we thought it was). This is illustrated most vividly in the conceptual heart of the book, part one entitled "What Is New Media?" Here Manovich offers a number of defining principles for digital technology, and at the same time debunks several of the myths surrounding it. The five principles – numeric representation, modularity, automation, variability, and transcoding – are not to be understood as universal laws of new media. Rather, they describe some of the aesthetic properties of data, and the basic ways in which information is created, stored, and rendered intelligible.

Scattered throughout the book, Manovich advances a number of aesthetic claims that have become commonplace parlance in the discourse on digital interfaces, including the idea of a "logic of selection," the importance of compositing, the way in which the database itself is a medium, the emphasis on navigation through space, the reversal of the relationship between syntagm and paradigm, the centrality of games and play, the waning of temporal montage (and the rise of spatial montage), and many other observations. All of these concepts and claims are now taken for granted in the various debates that make up today's discourse on new media.

Dissent exists of course. Given that the operative question is "What Is New Media?" we should remember that more than one response exists to such a question.[2] It is clear where Manovich puts his favor: new media are essentially *software applications*. But others have answered the same question in very different ways. There are those who say that hardware is as important if not more so than software (Friedrich Kittler or

Wendy Hui Kyong Chun), or those who focus on the new forms of social interaction that media do or do not facilitate (Geert Lovink or Yochai Benkler), or even those who focus on networks of information rather than simply personal computers (Tiziana Terranova or Eugene Thacker). Perhaps because of the wide degree of latitude afforded by the topic, Manovich's book has elicited a healthy stream of dialogue and debate since its original publication. I for one consider his claim about "the myth of interactivity" (55) to be misguided: yes, the term "interactive" is practically meaningless due to overuse, but that does not mean the term should apply willy-nilly to static works of art. But such quibbles are neither here nor there.

Rather, I would like to spotlight two issues of more profound significance that are worth addressing in the book. The first has to do with *cinema*, the second with *history*.

As the opening pages divulge, the dirty little secret of *The Language of New Media*, and the detail that reveals Manovich's first passion, is this: cinema was the first new media. New media did not begin in the 1980s in Silicon Valley; it began a hundred years prior at Étienne-Jules Marey's Station Physiologique in the outskirts of Paris. The reason for this is that cinema is the first medium to bring together techniques like compositing, recombination, digital sampling (the discrete capture of photographic images at a fixed rate through time), and machine automation, techniques that, of course, are present in other media, but never as effectively as the singular synthesis offered by the cinema. Thus, the technique of layering inside Photoshop is simply the same technique used in the color key effects afforded by video, or the cinematic convention of shooting actors standing in front of a rear-screen projection backdrop. Or to choose another example, the binary zero-and-one samples of a digital music file are also present decades earlier in the on and off regularity of a single film frame transiting across the projector's beam, stopping for a split second, and then moving again. For Manovich the flicker of film was always already a digital flicker.

With such fuel for controversy, many were quick to confront Manovich on his claims, perhaps most notably Mark B. N. Hansen in his book *New Philosophy for New Media*. Hansen

acknowledges the influence of *The Language of New Media*, writing that "Manovich's depiction of digital technology is undoubtedly the most rich and detailed available today."[3] Yet he also argues that Manovich's book is tinted by an over invest-ment in the cinematic. Manovich's position "extends the sway of the 'cinematic' in the narrow sense, and in particular serves to ratify cinematic immobility *as the default condition of the human-computer interface.*"[4] (Yet Hansen's subsequent claim, that Manovich cannot think beyond the rectilinear cinematic frame, is unconvincing, given Manovich's argument in the book about the waning of temporal montage and the rise of spatial montage, or what is often simply called "windowing.") In short, Manovich's greatest trick, the cinema, is also, in the eyes of some critics, his greatest vulnerability.

In addition to cinema, a second large issue looms in the book, that of history. Would it be entirely correct to say that this book has no interest in the social, that it has no interest in the political, that it is blinded (by poetics and formal struc-ture) from seeing history itself? As with anyone who gravitates to pure poetics, Manovich is not immune to such questions. Like some of his critics, I too am concerned by the emphasis on poetics and pure formalism. One might think of Manovich as the polar opposite of someone like Fredric Jameson and the commitment to what he calls the "poetics of social forms." One sees the poetics in Manovich, but one loses the social forms. So there is something to be said for the argument that Manovich is participating in the tradition of those media theo-rists, like Kittler or Marshall McLuhan, who, while they may discuss the embeddedness of media systems within social or historical processes, ultimately put a premium on media as pure formal devices. (Kittler's politics are complicated, but in general he falls prey to some of the same traps of nostalgia and Hellenistic longing as his romantic forebears; McLuhan knew which way the wind was blowing in his public persona, but in private was a good traditional catholic who was more than a little unnerved by the social upheavals happening around him.)

Near to his heart, Manovich opens the book with Dziga Vertov. Featuring the Soviet filmmaker so prominently did not

go unnoticed by the intellectual establishment. In the following passage he is held at arm's length by the editors of the journal *October*, a publication known to have a special relationship to the avant-garde as well as poststructuralism and continental philosophy:

> It is thus with some interest that we witness the usage of a crucial avant-garde film such as Dziga Vertov's *Man with a Movie Camera* as the opening device of a recent text on the "language of new media," just as it once provided the signal image some years ago for the very first issue of this journal. And it is also with some doubt that we listen to these same theoreticians of the new digital media proclaim that cinema and photography – with their indexical, archival properties – were merely preliminary steps on the path to their merging with the computer in the *über*-archive of the database. Much of what was most important to cinema and photography is wiped away by such a teleology. And much of what seems most critical in contemporary artistic practice reacts to just such an erasure.[5]

Going a step further, Brian Holmes continues this line of dissent, as he bemoans what he sees as Manovich's "smug insistence that the new media were essentially defined by a certain kind of rhythm, a certain multiplication of screens, a certain connection to databases, etc. – in other words, that the new media were essentially defined by the dominant trends of contemporary capitalist society."[6]

While such dismissals might be seductive, here too I am not entirely convinced, and perhaps against my better judgment wish to offer something of a defense on his behalf. Yes, Manovich refuses a specific kind of American or European politico-historical critique of media technologies, the kind we might associate with any number of theorists on the left, from Louis Althusser, to Jean Baudrillard, to Guy Debord, or even today with Giorgio Agamben or Bernard Stiegler. But to understand Manovich, one must understand two important aspects of his work.

In an important short essay from 1996, "On Totalitarian Interactivity," Manovich admits that he sees digital interactivity as a type of political manipulation. He harbors a deep-

seated phobia of political ideology, due largely to his youth spent in the Soviet Union:

> As a post-communist subject, I cannot but see [the] Internet as a communal apartment of [the] Stalin era: no privacy, everybody spies on everybody else, [an] always present line for common areas such as the toilet or the kitchen. Or I can think of it as a giant garbage site for the information society, with everybody dumping their used products of intellectual labor and nobody cleaning up. Or as a new, Mass Panopticon (which was already realized in communist societies) – complete transparency, everybody can track everybody else.[7]

These kinds of passages should put to rest any murmurs over whether or not Manovich has a knowledge of history. By the early 1930s, Stalin had made socialist realism the only possible style in the Soviet Union. During this period the Russian formalists were criticized for not paying enough attention to social and historical issues, in essence for being apolitical. The power of the Stalinist machine eventually forced many of these formalists to the margins, or worse, into exile or death. Of course Manovich is no exiled enemy of the state, but because of this history he considers it intellectually dangerous to deny questions of form, poetics, and aesthetics. The irony is that, in making this gesture, which Manovich would classify as a gesture of political independence in the face of state power, he has been accused of overlooking the political sphere entirely. What worked one way in the Eastern Bloc, apparently works another way in the contemporary West.

His apparent abdication of the political (and his taking up the question of poetics), then, must not be measured against an America-European leftist yardstick, but as a kind of *glasnost* of the digital. Manovich is saying, in essence: the technological infrastructure may or may not have dubious politics, but let us put the old hobbyhorse of the critique of state-driven ideology behind us and dive into the semiotics of software so that we may first understand how it works.

Let me acknowledge therefore – and this is the second aspect – that Manovich's political gesture exists, even if it is a

counter-intuitive one. He is not a politicized Western intel-
lectual in the Sartrean mold. But that is the point. In other
words, when he writes on Vertov, he slices Vertov free from
the grasp of traditions such as "The Dziga Vertov Group" and
other red-flag comrades wishing a neat and tidy equation
between radical aesthetic experiments and radical politics. In
Manovich a medium is never a *dispositif.* (Mind you, I am not
endorsing this myself, merely attempting to offer a charitable
description of it.) Manovich would rather make the argument
that new media are first and foremost aesthetic objects. His
proof for this is, ironically, a profoundly historical one, that
Vertov simply does not have the same status today as he did
during the early and middle twentieth century. In an age when
Vertov's cinematic principles are embodied in code and
bundled as mere filter effects for desktop movie-making soft-
ware, as they are today, the revolutionary power of radical
aesthetics seems rather deflated. When Jean-Luc Godard
becomes a plug-in, we must look beyond the Nouvelle Vague.
Manovich understands this. His book thus serves as a provoca-
tion to those who still think that formalism is politically pro-
gressive. It is not, for new media at least, and that is the point.

    In the end *The Language of New Media* seems to be doing
two things at once. On the one hand it tries to outline the
specificity of new media, the particular qualities of the medium
that should be understood as absolutely new. But on the other
hand Manovich insists that new media are essentially cine-
matic, suggesting that we must look not to the new, but back-
ward to the various media that have come before. "To
summarize," he writes in the middle of the book, "*the visual
culture of a computer age is cinematographic in its appearance,
digital on the level of its material, and computational (i.e., software
driven) in its logic*" (180). The use of a layer metaphor is telling.
At one layer is cinema, at a second layer are bits and bytes, at
a third algorithm. Manovich's new media thus follow the same
structure of the *mise en abîme*: an outside that leads to an
inside, which leads to another inside, and on and on. This too
shows how Manovich's methodology is implicitly historical,
for the media landscape changed fundamentally after the
invention of cybernetics in the late 1940s. Today all media are

a question of synecdoche (scaling a part for the whole), not indexicality (pointing from here to there).[8] This assumption is absolutely central in *The Language of New Media*, and it helps explain why Manovich is prompted to look *within*, to cinema, in order to look to the present.

Google or Facebook have already broached the question of the interface. The open-source culture of new media really means one thing today, it means open interfaces. It means the freedom to connect to technical images. Even source code is a kind of interface, an interface into a lower level set of libraries and operation codes. Thus, when Google or Facebook "open-sources" resource x, it provides an API or "Application Programming Interface" granting managed access to x. Let us not be fooled: open source does not mean the unvarnished truth, but rather a specific communicative artifice like any other. And in this sense one should never celebrate a piece of source code, open or closed, as a bona fide original text (whatever that might mean). The interesting question is not so much whether open source is "more open" or "less open" than other systems of knowledge, but rather the question "How does open source shape systems of storage and transmission of knowledge?" If one is willing to assent to a synecdoche model for media systems, then it follows that sources (or partial sources) will play a more important role, since the system/subsystem or whole/part arrangement necessitates that one think about the innards of things as one scales from outside to inside.

However, the bad news, or good depending on one's proclivities, is that this "source" has almost nothing to do with concerns around sources and essences from a generation or two ago, particularly the concerns native to that intellectual movement so thoroughly *gauche* today, poststructuralism. The general open sourcing of all media systems, including the human form as the most emblematic media system, has almost nothing to do with the lingering phenomenological anxiety around presence and truth fueling poststructuralism's long obsession over sources. What was once an intellectual intervention is now part of the mechanical infrastructure. And so goes the dialectical machine, co-opting critique as fuel

for the new spirit of capitalism.[9] Instead one sees that the open sourcing of media systems (information wants to be free, desire wants to be free, capital wants to be free) is really about the migration into a new way of structuring information and material resources, which as Rancière might say also has its corresponding regime of art. But as in previous times one is still free to read the truth of social life through such structures – as Jameson does with his perennially useful methodology known as "cognitive mapping" – provided of course that one is not dazzled by the short-term candy of openness as such.

The dual move in Manovich – both to the past and to the present – is in fact a single gesture, for the grand argument given in his work is really one about media in general, that to mediate is really to interface, that mediation in general is just repetition in particular, and thus that the "new" media are really all the artifacts and traces of the past coming to appear in an ever expanding present.

If the Cinema Is an Ontology, the Computer Is an Ethic

T. J. Clark observed once, with the calm voice of experience, that in Courbet the entire world is one of proximity; the paintable is that thing, that space, that can be transformed into a Second Empire drawing room. This is Stanley Cavell's assessment too when, in *The World Viewed*, following Michael Fried's 1967 essay "Art and Objecthood," he likens painting to a certain desire for presentness. Painting assembles a space. But it is always a proximal space, a bounded space of textures and things brought around, not too close exactly, but certainly unconcealed and arrayed for handling. Painting is not Cavell's primary concern in *The World Viewed,* it is cinema after all, but painting offers a road down which one might travel to ascertain a certain quality shared by painting, photography, film, and a number of other art forms. It is the desire that the world be brought near to us.

Having a desire to be brought near – such a desire is most certainly at the very base of human life. Indeed the relative

nearness and farness of things may account for all manner of action, from love to hate, from the joy of communion to the perils of exile. But that is not all, for in art it concerns a specific, not a general, iteration of this desire for nearness. The phenomenon is most acute in photography, and thereby, for Cavell, in cinema (for him, a photography derivative); as he puts it: the world of the image is present to us, but we were never present to it. So it is nearness with a catch. The viewer does not attend the filming of the "profilmic event," to use the parlance of cinema studies. Thus it is a desire to be brought near, but one already afflicted with a specific neurosis, that of the rejection of the self. With each attempt to array the world in proximal relation to us, we must at the same time make ourselves disappear. With each step forward in Cavell's world, one becomes that much more inert. Every step done is a step undone.

Evoking questions of ethics and responsibility, Plato writes of a magical ring, the Ring of Gyges, that grants invisibility to the wearer and thus potential immunity from moral consequence. In effect, the cinema forces us to don the Ring of Gyges, making the self an invisible half-participant in the world.[10] The self becomes a viewing self, and the world becomes a world viewed. This is, in a nutshell, the cinematic condition for Cavell, and I guess I agree with him. The penalties and rewards are clear: to be "cinematically" present to the world, to experience the pleasure of the movies, one must be a masochist. That is to say, to be in a relation of presence with the world cinematically, one must subject the self to the ultimate in pain and humiliation, which is nothing short of complete erasure. It has been said that the cinema is the most phenomenological of media. But whether this is a phenomenology or the absolute impossibility of one is not entirely clear.

Cavell wrote: "A painting *is* a world; a photograph is *of* a world."[11] What can one say then of the cinema? Or the computer? Paraphrasing Cavell's definition of cinema, one might say, with considerably less panache than he, that the cinema automatically projects worlds (in series). So might it be *for* a world? The computer, then, is simply *on* a world, as it tends

to rise in separation from some referent, modeling and supplementing it. But enough phrase making, the crucial thing is to determine the nature of the machine.

Objects are never humans to a computer, nor are they faces or bodies. In this sense the computer breaks with those arts (painting, photography, cinema) that fixate upon the embodied human form – the face, but not always, the hand, but not always – and its proximal relation to a world, if not as their immediate subject matter then at least as the absolute horizon of their various aesthetic investments. The computer has not this same obsession. It aims not for man as an object. The reason is simple: because the computer is this object in and of itself.

Maybe this is why we do not cry at websites like we cry at the movies. Maybe it is why there is no "faciality" with the computer, why there is no concept of a celebrity star system (except ourselves), no characters or story (except our own), no notion of recognition and reversal, as Aristotle said of poetry. If the movie screen always directs toward, the computer screen always directs away. If at the movies you tilt your head back, with a computer you tilt in.

Profiles, not personas, drive the computer. Even as a certain kind of modern affect is in recession (following Jameson's famous argument about "the waning of affect" under postmodernity), there seems to be more affect today than ever before. Books are written on the subject. Conferences are devoted to it. The net is nothing if not the grand parade of personality profiles, wants and needs, projected egos, "second" selves and "second" lives. This is all true. So the triumph of affect is also its undoing. The waning of an older affective mode comes at the moment of its absolute rationalization into software. At the moment when something is perfected, it is dead. This is the condition of affect today online, and it is why the object of the computer is not a man: because its data is one.

Ultimately an additional step is necessary to explain the current reversal: *the computer is an anti-Ring of Gyges.* The scenario is inverted. The wearer of the ring is free to roam around in plain sight, while the world, invisible, retreats in

absolute alterity. The world no longer indicates to us what it is. We indicate ourselves to it, and in doing so the world materializes in our image.

To be "informatically" present to the world, to experience the pleasure of the computer, one must be a sadist.[12] The penalties and rewards are clear. In contrast to the cinema, in order to be in a relation with the world informatically, one must erase the world, subjecting it to various forms of manipulation, preemption, modeling, and synthetic transformation. The computer takes our own superlative power over worlds as the condition of possibility for the creation of worlds. Our intense investment in worlds – our acute fact finding, our scanning and data mining, our spidering and extracting – is the precondition for how worlds are revealed. The promise is not one of revealing something as it is, but in simulating a thing so effectively that "what it is" becomes less and less necessary to speak about, not because it is gone for good, but because we have perfected a language *for* it.

Every object has its relations. As Alain Badiou writes, there are only bodies and languages.[13] It is necessary then to distinguish two grand domains which are, like fighting siblings, so much more different from one another strictly by virtue of being so intimately conjoined. *Media* and *mediation*, one might speak casually about one or the other without realizing the fundamental difference dividing them. It would not be necessary to accentuate the difference if others had not already mixed them up so awkwardly, or as is often the case failed to understand the subtlety in the first place. In reality these two systems are violently unconnected.

Recall the famous pronouncement from Friedrich Kittler that all technical media either store things, transmit things, or process things.[14] At the risk of sounding too juvenile, I will observe that this definition of media is particularly media-centric! By which is meant that Kittler first posits the existence of specific media technologies, say the *camera obscura* or the magic lantern, and then shows how they may or may not be furnished with special characteristics (sending, saving, or calculating). Technical media exist in various forms, and they do x, y or z. His is a revelatory story of objects and the qualities

they carry. His is, in short, a hermeneutics of media devices as they appear after being pulled from the pit of history.

It leads to some delightful places, in particular the central thesis of the first section of his *Optical Media* lectures, in which he places the *camera obscura* and the magic lantern at the center of the history of all optical media. The *camera obscura* has a special relationship to linear perspective, the so-called "self-depiction of nature," and hence to Renaissance figures like Filippo Brunelleschi and Leon Battista Alberti. Because of this, it typifies for Kittler what Heidegger later would call "the age of the world picture." "[B]eing first constituted itself in the form of a representation (*Vorstellung*) in European modernity. Representational thinking delivered being as an object for a subject . . . [I]t can be said, following Heidegger's line of thought, that linear perspective and the *camera obscura* were precisely the media of this representation."[15] As a device for automatically recording images, the *camera obscura* functioned as a first-order simulation. It allowed reality to appear on a wall. By contrast, as a device for automatically reproducing or transmitting images, the magic lantern functioned as a second-order simulation. It allowed smaller images to appear larger on a wall. (The progression from first order to second order is appealing, and it sets Kittler up for a nice denouement: the film projector adopts the second-order quality of the magic lantern while adding a new digital simulation along the axis of time; television departs from the image entirely and instead goes for the symbolic space of language in which things are arranged in pixels and grids; and the computer annihilates the imaginary entirely, reverting back to that oldest of age-old media, writing.) Putting small, portable images up on a wall as large images, the essential task of the magic lantern, Kittler associates with Descartes' *cogito ergo sum*, wherein "the representation of the subject is re-presented to the subject once again as such."[16] Descartes' insistence in the *Meditations* that the philosopher must blot out the sun and sky and ball up his ears with wax illustrates for Kittler a particular model of mediation. Only the Cartesian self does what the magic lantern had already demonstrated: projects a representation, the thinking mind, back inward toward a previous representation, the

self, and therefore (for Descartes at least) shores up the meta-physical relation. So what Heidegger saw as a vital spark in early-modern European man, his ability to cognize the world as a reflection, Descartes bent back into the folds of a baroque philosophy in which man reflects not on the primary data of nature but on the image of man himself. Copernicus, it seems, was wrong.

Still, Kittler's fixation on the media-centric nature of media puts him temporarily on some dangerous ground. For instance, this foolishness that "philosophy . . . has been necessarily unable to conceive of media as media," owing chiefly to the lack of imagination in a certain Aristotle, whose "ontology deals only with things, their matter and form, but not with relations between things in time and space. The very concept of a (physical) medium (*tò metaxú*) is relegated to his theory of sensorial perception (*aisthesis*)."[17] The insinuation here is bright and clear, why not state it unequivocally: Western philosophy since the Greeks has had no theory of mediation.[18]

Doubtless certain Greek philosophers had negative views regarding hypomnesis. Yet Kittler is reckless to suggest that the Greeks had no theory of mediation. The Greeks indubitably had an intimate understanding of the physicality of transmission and message sending (Hermes). They differentiated between mediation as immanence and mediation as expression (Iris versus Hermes). They understood the mediation of poetry via the Muses and their *techne*. They understood the mediation of bodies through the "middle loving" Aphrodite. They even understood swarming and networked presence (in the incontinent mediating forms of the Eumenides who pursued Orestes in order to "process" him at the *procès* of Athena). Thus we need only look a little bit further to shed this rather vulgar, consumer-electronics view of media, and instead graduate into the deep history of media as modes of mediation, a task that with a bit of luck will be accomplished presently *vespere et mane*.

Realizing the danger, Kittler retreats slightly from the more extreme argument. He explains that, while Aristotle might exclude media from his theory of matter and form, he doesn't act likewise in his discussion of human perception. "Aristotle,

however, speaks of two elements, namely air and water, as of two 'betweens.' In other words, he is the first to turn a common Greek preposition – *metaxú*, between – into a philosophical noun or concept: *tò metaxú*, the medium. 'In the middle' of absence and presence, farness and nearness, being and soul, there exists no nothing any more, but a mediatic relation. *Es gibt Medien*, we could say."[19] Hence even if Aristotle does not discuss mediation when he talks about hylomorphism and ontology, he nevertheless inaugurates philosophy's centuries-long relationship to media via a discussion of the human senses. The missing interlocutor here is Bernard Stiegler, who has perhaps more clearly than anyone since Heidegger framed the intimate co-construction of technology and being.

All of this now in the light of day, I am in a position to identify more clearly the conservatism of Kittler, who on this point finds a confrere in Marshall McLuhan. By conservative I mean the claim that *techne* is substrate and only substrate. For Kittler and McLuhan alike, media mean hypomnesis. They define media via the externalization of man into objects. Hence a fundamentally conservative dichotomy is inaugurated – which to be clear was in Plato before it was in Aristotle – between the good and balanced human specimen and the dead junk of the hypomnemata. Contrast this with an alternate philosophical tradition that views *techne* as technique, art, habitus, ethos, or lived practice. Such an alternate tradition is what was alluded to previously, through the contrast between media (as objects or substrates) and practices of mediation (as middles or interfaces). Indeed it is ironic that Kittler hews so closely to Heidegger, as Heidegger was one of the philosophers who best understood both aspects of *techne*.

We are not finished yet however. For Kittler also harbors a deep-seated interest in another ancient yearning of philosophy, one which is as old as it is powerful. It is the desire to reduce the many to the one. In *Optical Media*, during his discussion of film Kittler stresses the way in which Étienne-Jules Marey was committed to a single camera, thereby reducing many devices to a single apparatus: "By holding tight to the unifying, linearizing power of writing paper, Marey always only needed one single piece of equipment, while Muybridge

had to position 12 different cameras. The task, therefore, was to dispose of 11 cameras and still be able to supply serial photographs. In the process, Colt's good old revolver was once again honored, as it had also reduced the need for six pistols down to one."[20] Later, in his discussion of television he says something similar: "In contrast to film, therefore, the problem of television from the very beginning was how to make a single channel dimension from two image dimensions, and how to make a single time variable from convertible surfaces."[21] And again later in the albeit short discussion of computers: "[C]omputers represent the successful reduction of all dimensions to zero."[22] (Given what I intend to argue in a future essay addressed to the fundamental "parallelity" of the image, it will be possible to demonstrate that the computer is never the product of a reduction from two to one, or from the multiple to the zero, but in fact the reverse, for the computer belongs to that long aesthetic tradition that derives all of its energy from a fission of the one dividing into the multiple.[23]) The reduction of the many to the one is symptomatic, not only of a latent politics lurking within the Kittlerian corpus, but also, more simply, of the aforementioned prioritization of the object over the middle. A philosophy of mediation will tend to proliferate multiplicity; a philosophy of media will tend to agglomerate difference into reified objects. Perhaps this is why Kittler, although notable among his peers for an intrepid willingness to write on computers, never fully theorized digital media as much as other media technologies and platforms, for where is the object of distributed networks located, where is a rhizome, where is software? For Kittler, alas, "there is no software."[24]

I applaud Kittler, though, for his understanding of the relation between computers and the optical. Many scholars today continue to classify the computer as another installment in the long march of visual culture. As Kittler makes clear, such a position is totally wrong. Subsequent to television, which began a retreat away from optical media and a return to the symbolic in the form of signal codification, the computer consummates the retreat from the realm of the imaginary to the purely symbolic realm of writing. "In contrast to film,

television was already no longer optics," he writes. "Digital image processing thus ultimately represents the liquidation of this last remainder of the imaginary. The reason is simple: computers, as they have existed since the World War II, are not designed for image-processing at all."[25]

Nevertheless the archive extends its influence over Kittler's thinking. For he thinks of technical media primarily in terms of artifacts, artifacts for storage, transmission, or processing. But what if we were to take the ultimate step and pose the question of media in reverse? What if we refuse to embark from the premise of "technical media" and instead begin from the perspective of their supposed predicates: storing, transmitting, and processing? With the verbal nouns at the helm, a new set of possibilities appears. These are modes of mediation, not media per se. The shift is slight but crucial. The mode of storage appears instantly within its own illumination; the mode of transmitting returns from a far-off place; the mode of processing wells up like a flood of pure energy.

Gilles Deleuze has suggested as much in his work. In the essay "What Is a *Dispositif*?" Deleuze writes that one should not focus so much on devices or apparatuses as such and more on the physical systems of power they mobilize, that is, more on curves of visibility and lines of force. "These apparatuses, then, are composed of the following elements: lines of visibility and enunciation, lines of force, lines of subjectification, lines of splitting, breakage, fracture, all of which crisscross and mingle together, some lines reproducing or giving rise to others, by means of variations or even changes in the way they are grouped."[26] When Kittler elevates substrates and apparatuses over modes of mediation, he forfeits an interest in techniques in favor of an interest in objects. A middle – a compromise, a translation, a corruption, a revelation, a certainty, an infuriation, a touch, a flux – is not a medium, by virtue of it not being a technical media device.

What is the computer, then, as a mode of mediation? Cavell, and he is not the only one simply the most convenient, speaks of the possibility of a medium. The possibility of a medium stands in intimate relation to what a medium is, that is to say, the definition of whatever medium is in question. Thus when

one asks "What is the possibility of video?" one is in the same breath asking "What is the definition of video?" Yet the computer occupies an uneasy position in relation to both definition and possibility, for in many cases the very words that people use to address the question of the computer are those selfsame words "definition" and "possibility." One hears stories about computers being "definitional" machines: not only does computer code operate through the definitions of states and state changes, but computers themselves are those special machines that nominalize the world, that define and model its behavior using variables and functions. Likewise one hears stories about computers being "possibility" machines: they operate not through vague estimations of practice, but through hard, machinic possibilities of truth or falsehood, openness or closedness, on or off. So I suggest that these terms "definition" and "possibility" might do more harm than good if our aim is to understand the machine and how it works. How can we determine the possibility of new media if new media are nothing but possibility machines? How can we define them if they are already cast from the mold of definition? To adopt a shorthand, one might summarize this state of affairs by asserting that the computer has hitherto been understood in terms of metaphysics. That is to say, when people speak about the computer as an "essencing machine" what they really mean is that computers simulate ontologies, they define horizons of possibility. This is the terrain of metaphysics. These sorts of definitions can be found in Lev Manovich, Janet Murray, and all across the discourse on new media today. The notion is that one must define the medium with reference to a specific "language" or set of essential formal qualities, which then, following the metaphysical logic, manifest in the world a number of instances or effects. (One of the shortcomings of this approach, which I will not delve into very deeply here, is the problem of essentialism, that is to say, the notion that new media objects are a priori a certain way, and it is merely the job of the critic to examine them, and extract the universal laws or languages that constitute their proper functioning in the world; my elders in the anti-essentialist critical tradition – from Homi Bhabha to Donna Haraway and beyond – have rightfully pointed out

how this leads eventually to a number of political and theoretical problems, least of which being that it forecloses on contingency and historicity, two things that turn out to be quite desirable indeed.)[27]

Inoffensive thus far, however the story becomes more complicated once we acknowledge that the computer is dramatically unlike other media. Instead of facilitating the metaphysical arrangement, the computer does something quite different: it simulates the metaphysical arrangement. In short, the computer does not remediate other physical media, it remediates metaphysics itself (and hence should be more correctly labeled a metaphysical medium). I shall refrain from saying it remediates mediation itself, but the temptation exists. The metaphysical "medium" of essences and instances is fundamentally dead today. And because it is dead, the medium of essences and instances reemerges in a new mediatic form, the computer. Informatic machines do not *participate* in the worldly logic of essences and instances, they simulate it. For example, principles like disposability and planned obsolescence, on the one hand, seem to occlude age-old metaphysical problems about the persistence of essential identity in the form of universals or transcendents. Quite frankly, the metaphysical questions are simply not the interesting ones to ask in the face of all this junk. But on the other hand, within the logic of the machine one sees little more than an effigy for, and an undead persistence of, these same metaphysical principles. As was said previously regarding affect, things always reach their perfection in death.

The remediation argument (handed down from McLuhan and his followers including Kittler) is so full of holes that it is probably best to toss it wholesale. So what to do with the notion of remediating metaphysics itself? If any hope may be found for the remediation theory, it is in the "itself." Television does not simply remediate film, it remediates film *itself*. The important issue is not that this or that film is scanned and broadcast as the "content" of television (this being one version of McLuhan's remediation argument). The important issue is that television incorporates film itself, that is, it incorporates the entire, essential cinematic condition.

Hypotheses governing remediation are quickly put to the test. Kittler's amazing discussion of time axis manipulation in recorded sound is instructive on this point.[28] Recorded sound may remediate performed music, but what is being remediated when a musician plays magnetic tape backward and hears for the first time a true sonic reversal (not simply the reversal of phonemes)? Or consider the computer. A computer might remediate text and image. But what about a computer crash? What is being remediated at that moment? It can't be text or image anymore, for they are not subject to crashes of this variety. So is a computer crash an example of non-media? In short, the remediation hypothesis leads very quickly to a feedback loop in which much of what we consider to be media are in fact reclassified as non-media, thereby putting into question the suitability of the original hypothesis.

A brief reference to object-oriented programming will help illustrate the problems surrounding the remediation of metaphysics itself. The metaphysico-Platonic logic of object-oriented systems is awe inspiring, particularly the way in which classes (forms) define objects (instantiated things): classes are programmer-defined templates, they are (usually) static and state in abstract terms how objects define data types and process data; objects are instances of classes, they are created in the image of a class, they persist for finite amounts of time and eventually are destroyed. On the one hand an idea, on the other a body. On the one hand an essence, on the other an instance. On the one hand the ontological, on the other the ontical.

Cinema so captured the twentieth-century imagination that it is common to assume that other media are also at root cinematic. And since the cinema is, in general, an ontology (in particular it is a phenomenology), it seems logical to assume that other media are ontological in the same way. The computer however, is not *of* an ontological condition, it is *on* that condition. It does not facilitate or make reference to an arrangement of being, it remediates the very conditions of being itself. If I may be so crude: the medium of the computer is being. But one must take this in an entirely unglamorous way. It is not to say that the computer is the ontological actor par

excellence, that it marks the way for some cyborg *Dasein* of the future. No, the point is that the computer has so degraded the ontological plane, that it may reduce and simulate it using the simple principles of logical relation. Being is its object, not its experience. And if being is merely its object, we ought to look elsewhere to try to understand its experience.

The computer instantiates a practice not a presence, an effect not an object. In other words, *if cinema is, in general, an ontology, the computer is, in general, an ethic.* Perhaps a useful way to understand the distinction is to differentiate between a language and a calculus. A language operates at the level of description and reference. To encode the world, this is the primary goal of language. (Of course one might also speak about the autonomous space of language, in for example textuality, as a space of interconnection and deferral of meaning, and so on.) A calculus, on the other hand, operates at the level of computation and process. To do something to the world – or if you like to simulate doing something to the world – this is the primary goal of a calculus. With a calculus, one speaks of a system of reasoning, an executable machine that can work through a problem, step by step. The difference between the two, in one aspect, is that a calculus implies a method, whereas a language does not.

I make a distinction between an ethic, which describes general principles for practice, and the realm of the ethical, which defines such general principles for practice within the context of a specifically human relationship to moral conceptions of the good. So to say that the computer is in general an ethic is *not* to say that computers are "ethical." Note therefore that mine is not a personification of the machine, but rather an anti-anthropocentrism of the realm of practice. And I will always defend the unpopular notion that, in the end, machines really have no need for humans at all (just in the same way that the Real has no need for us, but we have a horrifying need for it). Yet in actual fact the machine does have an anthropocentric relation, and this is where one might speak to the question of a computer ethic. As an ethic, the computer takes our action in the world as such as the condition of the world's expression. So in saying practice, I am really indicating a rela-

tionship of command. The machine is an ethic because it is premised on the notion that objects are subject to definition and manipulation according to a set of principles for action. The matter at hand is not that of coming to know a world, but rather that of how specific, abstract definitions are executed to form a world.

Ontology often receives top billing in questions philosophical, even in cases when its hegemony is not warranted. So let me restate the argument: the computer has hitherto been defined ontologically; but this approach (using the ontological concepts of possibility and definition) is dubious because the computer itself is already a matter of possibility and definition; thus if the computer might better be understood in terms of a practice or a set of executions or actions in relation to a world, the proper branch of philosophy that one should turn to is ethics or pragmatics, not ontology or metaphysics; as an ethics, the computer takes our execution of the world as the condition of the world's expression. And this is the interface effect again, only in different language: the computer is not an object, or a creator of objects, it is a process or active threshold mediating between two states.

Neither an object nor a creator of objects – but where does this get us? First, beyond the response to Kittler, we can now rekindle the response to Manovich begun at the outset. The main difficulty with a book like *The Language of New Media*, for all its strength, is not simply that it participates in the various squabbles over this or that formal detail. Are games fundamentally about play or about narrative? What has greater semiotic priority, code or interface? In the end these territorial skirmishes do not interest me much. The main difficulty is the simple premise of the book, that new media may be defined via reference to a foundational set of formal qualities, and that these qualities form a coherent language that may be identified across all sorts of new media objects, and above all that the qualities may be read, and may be interpreted. This is what was called, many years ago, structuralism. Let me be clear, it is not so much that these sorts of books are misguided (and not so much to pick on Manovich, for there are scores of other texts that do similar work; his simply is one of the earliest and

most accomplished examples), but that their conclusions are unappetizing. This is the crux of the matter: they contain no injunction. They talk more about objects and operations than practices and effects. The problem is not formal definition – for after all I am willing to participate in such a project, suggesting for example that with informatic machines we must fundamentally come to terms with the problem of action. The sticking point is that, in this instance, the use of formalism as a method does not ultimately conform most faithfully to the subject at hand. That is, if the computer *were* a formal medium, then perhaps our analysis of it could be too. But my position is that it is not exclusively or even predominantly formal. So in a certain sense, Manovich is, shall we say, slightly more avant-garde, performing an "intervention," while my call is much more conservative. If the language (of new media) is really an executable language and not simply a natural one, then would it not make sense for one's critical appraisal to be in step with that same notion of executability? So when I say that these other authors' conclusions are unappetizing it should be taken in the most mundane sense: that the current discourse on "excitable" machines – to put it bluntly – is not that exciting. In other words, if computers must be understood in terms of an ethics (those who wish instead to call it a politics should do so), then the discourse produced about them must also fulfill various ethical and political expectations. Else what is the good?

1962], 223.) If anything, Heidegger's work is special because it entirely synthesizes such an internally obfuscated and withdrawn subject-position directly into a theory of being, rather than either attempting to refine it to perfection (Hegel) or overcome it in pure rejection (Nietzsche).

Introduction: The Computer as a Mode of Mediation

1   Subsequent parenthetical citations refer to Lev Manovich, *The Language of New Media* (Cambridge: The MIT Press, 2001).

2   One common response is that of the schoolmarm, to harp on a strict subject-verb agreement and correct the question as "what *are* new media?" I am perfectly willing to follow Manovich and treat the word media as singular, like the usage of words like politics or aesthetics.

3   Mark B. N. Hansen, *New Philosophy for New Media* (Cambridge: MIT Press, 2004), 35.

4   Ibid., 34.

5   Editors, "Introduction," *October* 100 (Spring 2002): 3–5, pp. 3–4.

6   Brian Holmes, "New Media from the Neolithic to Now," http://brianholmes.wordpress.com/2009/05/22/new-media-from-the-neolithic-to-now/ (accessed June 13, 2009).

7   Lev Manovich, "On Totalitarian Interactivity," http://www.manovich.net/TEXT/totalitarian.html (accessed June 13, 2009).

8   Tiziana Terranova describes such a transformation in her book *Network Culture: Politics for the Information Age* (London: Pluto, 2004) when she discusses the "nonlinear relation between the micro and the macro" evident in informatic media. For Terranova, our contemporary media shift from being a question of difference and position within a dialectical scenario, to being a question of mutation and movement within open systems (28).

9   As Luc Boltanski and Ève Chiapello call it in their 1999 book, recently made available in English, *The New Spirit of Capitalism* (London: Verso, 2005).

10 Cavell's reflections on this are worth reproducing in adequate length: "How do movies reproduce the world magically? Not by literally presenting us with the world, but by permitting us to view it unseen. This is not a wish for power over creation (as Pygmalion's was), but a wish not to need power, not to have to bear its burdens. It is, in this sense, the reverse of the myth of

Faust. And the wish for invisibility is old enough. Gods have profited from it, and Plato tells it in Book II of the *Republic* as the Myth of the Ring of Gyges. In viewing films, the sense of invisibility is an expression of modern privacy or anonymity. It is as though the world's projection explains our forms of unknownness and our inability to know. The explanation is not so much that the world is passing us by, as that we are displaced from our natural habitation within it, placed at a distance from it. The screen overcomes our fixed distance; it makes displacement appear as our natural condition." See Stanley Cavell, *The World Viewed: Reflections On the Ontology of Film* [1971] (Cambridge, MA: Harvard University Press, 1979), 40–41.

11   Cavell, *The World Viewed*, 24.

12   Much more could be said on the question of whether sadism is in fact a suitable opposite for masochism and how and why they might be paired in the first place. For example the necessary narcissism of the masochist, the fact that all trauma must ultimately find both its cause and its solution in the self, also finds an opposite in the "split mind" of the schizophrenic, for whom the fragmentation of the self connects to elements both external and internal, but also enigmatically *within* or orthogonal, to the subject.

13   In Badiou this is both a simple claim about being and a lament of the highest order. The existence of "only" bodies and languages indicates a triumph of a specific political regime, democratic materialism, for which Badiou has zero affection. In a trick of language Badiou reveals the secret: bodies and languages are what *are*, but there are also things that *are not*: truths.

14   He expresses this in many ways in many places, but one convenient spot is Friedrich Kittler, *Optical Media*, trans. Anthony Enns (Cambridge: Polity, 2010), 26.

15   Ibid., 75.

16   Ibid.

17   Friedrich Kittler, "Towards an Ontology of Media," *Theory, Culture & Society* 26, nn. 2–3 (2009): 23–31, pp. 23–24.

18   This position has been endorsed recently in John Guillory, "Genesis of the Media Concept," *Critical Inquiry* 36 (Winter 2010): 321–362. Guillory's thorough investigation, aided largely by the *Oxford English Dictionary* entries on media and related terms, nevertheless, after a brief consideration of Aristotle, discounts the classical and medieval periods entirely. "The

philological record informs us that the substantive noun *medium* was rarely connected with matters of communication before the later nineteenth century" (321). Guillory stresses "a lacuna" of "several centuries," leading to a "long silence in Western thought on the question of medium" (321, 324).

19   Kittler, "Towards an Ontology of Media," 26.

20   Kittler, *Optical Media*, 159.

21   Ibid., 208.

22   Ibid., 227.

23   Note the spectacular finale to Kittler's essay on the ontology of media: "'There will arrive the day when holy Troy has been destroyed', was one of Hector's famous sayings in Homer's 'Iliad'. We cannot predict but gloomingly foresee the night of this fire. Perhaps a rosy new dawn will arise and realize the dream most dear to solid state physicians: computers based on parallel and tiny quantum states instead of on big and serial silicon connections. Then I, or rather my successors, shall withdraw this paper" (Kittler, "Towards an Ontology of Media," 30). I shall respond, respectfully albeit slightly hubristically, that the day has already come. Kittler thinks in terms of seriality. Yet despite the fluttering Turing tape of endless length, one must remember that the computer is a device born of parallelity, not seriality.

24   See Friedrich Kittler, "There Is No Software," *Ctheory*, http://www.ctheory.net/articles.aspx?id=74 (accessed March 15, 2011).

25   Kittler, *Optical Media*, 226.

26   Gilles Deleuze, "What Is a *Dispositif*?" in *Michel Foucault, Philosopher*, trans. Timothy Armstrong (New York: Routledge, 1992), 162.

27   Another thorny shortcoming of the formalist approach is that it is often very difficult to find solid accord between one's formal checklist and the object at hand. I recount a recent lecture as an example. Speaking on "Software Studies" at the University of Amsterdam on August 11, 2008, Warren Sack gave the following list of formal characteristics in defining what computer programs are (or to be more specific, how code differs from other forms of writing): (1) programs deploy the *imperative* (and sometimes the conditional) mode; (2) they are *autonomous*, meaning they can be executed; (3) they are *impersonal*, meaning they eschew pronouns like "I," "me," or "you"; (4) programs are below the level of the naked eye and hence *infinitesimal*; (5) they are *illegible*, as in the inability for humans to read compiled

code; (6) and they are *instantaneous*. Now, I don't disagree with these observations, and in fact believe in the utility of many of them. However as definitional qualities, they all seem rather flimsy. As an exercise I will cite valid counter examples for each so-called characteristic: (1) code comments exist in programs yet are not imperative; (2) computer programs frequently crash putting their pure autonomy in doubt; (3) programs may not use personal pronouns, but variables and variable declaration are at the heart of most programs meaning they are quite fundamentally oriented around the identification and address-ing of objects and entities; (4) consider the example of the computer punch card which is a program that exists at the human level of visibility; (5) open source code formats – HTML even – defy the principle of illegibility; (6) phenomena such as network lag routinely inhibits online games, making their non-instantaneous reality painfully evident. This is not to single out Sack, simply to demonstrate that formalist checklists are often extremely hard to ratify given the complexity of the subject matter.

28   See for example Friedrich Kittler, *Gramophone, Film, Typewriter*, trans. Geoffrey Winthrop-Young and Michael Wutz (Stanford: Stanford University Press, 1999), 34–36.

1   The Unworkable Interface

1   Michel Serres, *Le Parasite* (Paris: Éditions Grasset et Fasquelle, 1980), 107. For the theme of "windows" one should also cite the efforts of the software industry in devising graphical user inter-faces. The myth is branded by Microsoft, but it is promulgated across all personal computer platforms, "progressive" (Linux) or less so (Macintosh), as well as all manner of smaller and more flexible devices. A number of books also address the issue, including Jay David Bolter and Diane Gromala, *Windows and Mirrors: Interaction Design, Digital Art, and the Myth of Transparency* (Cambridge, MA: MIT Press, 2003), and Anne Friedberg, *The Virtual Window: From Alberti to Microsoft* (Cam-bridge, MA: MIT Press, 2006). The best examination of the history and theory of the interface that I am aware of is Branden Hookway's doctoral dissertation, "Interface: A Genealogy of Mediation and Control" (Princeton University, 2011).