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From Hypertext Theory to Applied Media Theory

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ABSTRACT. Contemporary critical theorists such as Barthes and Derrida experimented with the formal limitations of print, forecasting new digital modalities. However, the hypertext theorists that followed, in addition to most contemporary media theorists, eschewed formal experimentation to produce a print-oriented mode of discourse. Applied Media Theory (AMT) is a methodology that engages in formal experimentation with new media as a means of generating critical discourses and technologies. This essay identifies a pattern of object-oriented methods in contemporary media theory (Greg Ulmer, Sherry Turkle, Don Ihde), and demonstrates how these approaches might be combined to form a new applied critical practice that intervenes in the formation of digital culture. This approach, which combines digital art practices with research methods in the social science and humanities, is demonstrated in the description of AMT projects underway in the Critical Media Lab at the University of Waterloo.

KEYWORD.: media theory, hypertext theory, critical media, evocative object, epistemological engine, Terror Management Theory, digital art, geocaching, physical computing.

In 1993, as a student of critical theory and creative writing, I began a collaborative intermedia project with Canadian painter Steve Gibb. The goal was for Gibb to create a series of independent paintings in his typical surrealist fashion, and I was to respond to each by treating it as the repository of a specific postmodern theory. My goal was to «unpack» each of Gibb's paintings, using it to generate critical theory in the same way that a medieval grammar student might use a mnemonic icon to generate rhetorical theory. In a shameless act of appropriation, I went so far as to give a title to each of Gibb's works, and to this day, they serve as mnemonic devices, each one reminding me of a specific concept from Foucault, Barthes, Baudrillard, etc. What I have yet to mention is that the project was designed as a way of exploring the formal potential of hypertext, which in 1993 was still resonating with the mystical, emancipatory aura of a spell cast by such scholars as Jay Bolter and George Landow. As I migrated the project into hypertext form, I fell victim to the spell, coding link after link into each page, and multiplying the number of nodes (or *lexia*) until the project, which we aptly entitled «Gibberish», contained nearly 100 HTML pages and over 1,000 links. Today, I would suggest that the spell that enchanted me, driving me to add a link to nearly every sentence in the piece, was a form of obsessive paranoia, an encyclopedic desire to exhaust Gibb's paintings of all their meaning. By the time the project was finished (could it ever be finished?), a terminus point that was ultimately decided by the confines of the university semester system, I had also exhausted my hypertextual drive toward the infinite. What I really wanted to do, after all, was to possess or fully consume these paintings that outstripped the bounds of what I could perform textually. What I really wanted to do was create the paintings myself. But I had to take consolation in the creation of a hypertext.

My desire to 'fully consume' Gibb's paintings, whether driven by capitalist ritual or perverse fetishism, runs counter to hypertextual discourse, which, as hypertext theorists established in the mid-1990s, embodies poststructural and deconstructive theories about the impossibility of ever fully consuming a text or image. Hypertext, whether browser based or in proprietary packages such as Storyspace, does indeed provide an «almost embarrassing literal embodiment» (Landow, 53) of certain tenets of poststructuralism such as intertextuality, the «death of the author,» and Bakhtinian heteroglossia. But--and this is the crux of the issue--hypertext is only one digital form among many that is capable of embodying critical theory. What I learned from the «Gibberish» project is that it is possible to give theory a body other than text, and more importantly, that the creation of such a body can serve as a generative activity leading to new theoretical concepts and new formal modes of theorization.

As Jay Bolter has argued more recently, deconstructive theorists such as Barthes and Derrida engaged in formal experimentation with text as a means of embodying their theories about textuality. Their formal experiments in print anticipated the

structure of another expressive medium, hypertext. This differentiates them from hypertext theorists whose formal work seems to move antichronologically, culminating «in linear essays destined for print» (Bolter, 20). For these theorists, hypertext was not a mode of formal experimentation, such as *Glas* or *S/Z*; it was merely an off-the-shelf package for literalizing and reifying critical theory. «Gibberish» was an attempt to deal with this lack of formal experimentation in hypertext theory by inserting critical theory into a digital discourse network. But it ultimately fails as a formal experiment because it simply makes conventional--not experimental--use of the hypertext modality. In hindsight, «Gibberish,» like the hypertext version of Landow's *Hypertext* book, was no more than a programmatic act of digital archiving.

«Gibberish» has led me to engage in other formal experiments over the years, drawing on digital media, the earliest of which I created under the advisement of Greg Ulmer at the University of Florida. Ulmer's *Applied Grammatology* serves as a relay for this study, which proposes a new critical methodology that I have called Applied Media Theory (AMT). In *Applied Grammatology*, Ulmer notes that Derrida's formal experimentation relied heavily on references to objects and images; not just the use of images as illustrative devices, however, but «the sustained expansion of images into models. Thus he gives considerable attention in his texts . . . to the description of quotidian objects--an umbrella, a matchbox, an unlaced shoe, a post card--whose functioning he interrogates as modeling the most complex or abstract levels of thought» (xii). Ulmer draws on Derrida's method to invent an applied mode of pedagogy that challenges the formal conventions of scholarly composition. But Derrida's «objects to think with,» as filtered through Ulmer, have sent me in another direction: toward an applied mode of media theory in which digital objects are used to model complex or abstract levels of thought related to the forms and social impacts of digital media. As Jay Bolter suggests, «poststructuralism was in fact a critique of the assumptions of the medium of print from within that medium» (30). Applied Media Theory then, is a critique of the assumptions of digital media from within those media. It is a response to the following 'post-hypertext' challenge to media theorists proposed by Bolter: «What we need is a hybrid, a fusion of the critical stance of cultural theory with the constructive attitude of the visual designer. This new media critic that we are imagining wants to make something, but what she wants to make will lead her viewers to reevaluate their formal and cultural assumptions» (30).

The remainder of this essay is divided into two sections that will help respond to this challenge by illustrating the AMT concept and methodology. First, I will investigate various object-oriented theoretical methodologies in order to distinguish them from AMT. Second, I will briefly describe a number of projects conducted in the Critical Media Lab, which are informed by the AMT methodology. The goal of this essay is not to argue for the originality of AMT, but to place this model of

practice within a historical framework of formal experimentation in critical theory, and also to extend this framework to include contemporary artistic practices, which provide some of the best models for formal experimentation in digital media. Hopefully, this work will generate a productive conversation about «applied» methodologies, object oriented theories, and the differences between artistic creation and research practices.

1. Hypericon

The seeds of AMT can be found in my recent book *E-Crit: Digital Media, Critical Theory, and the Humanities* (U of Toronto P, 2006). In *E-Crit*, I argue for new modes of scholarly discourse more suitable to a digital, picture-oriented culture. Central to the study is a formal experiment in hypertext called *hypericonomy*, which involves generating a network of discourses on a given topic, interconnected by a single iconographic leitmotif. The method makes operational use of W.J.T. Mitchell's concept of the *hypericon*, which he describes in *Picture Theory* as «a piece of moveable cultural apparatus, one which may serve a marginal role as illustrative device or a central role as a kind of summary image . . . that encapsulates an entire episteme, a theory of knowledge» (Mitchell, 1994: 49). The creator of a hypericonomy proceeds by identifying schematic, iconic shapes across various levels of discourse (popular, historical, autobiographical, etc.) related to a specific object of study. The hypericon serves as the organizing principle, replacing the progressive, linear logic of print with the digressive, rhizomatic logic of the visual pun. The goal of hypericonomy is to demonstrate its creator's subject positioning within the network of discourses (verbal and pictorial) that informs her object of study. Hypericonomy embraces the pictorial, multilinear and multivocal nature of hypertext, providing a strategy of resistance against the print-oriented logic of the academic essay.

That being said, hypericonomy is no more a form of Applied Media Theory than «Gibberish.» Both projects make use of digital media to critique the forms and ideologies that characterize print culture, whereas AMT *makes use of digital media to critique digital culture*. Still, the hypericon is a useful tool for applied media theorists. It suggests a movement away from textual argumentation toward a pictorial, object-oriented mode of critique. Derrida's post card and Foucault's pipe (from the essay *Ceci n'est pas une pipe*), are superb examples of hypericons. But Foucault did not paint *La trahison des images*; he simply borrowed it from René Magritte. An applied media theorist must learn to create her own hypericons.

2. Object-To-Think-With and Evocative Object

Thus far I have made liberal use of the term «object-to-think-with» as a key component of Applied Media Theory, but I have yet to cite the source of this expression. The term, as I am using it here, comes from Sherry Turkle's *Life on the Screen*, in which she argues that screen life reflects postmodern theories about identity formation. According to Turkle, the computer gives people «a way to think concretely about an identity crisis. In simulation, identity can be fluid and multiple, a signifier no longer clearly points to a thing that is signified.» (49). Echoing the hypertext theorists that were her mid-90s contemporaries, Turkle suggests that «Computers embody postmodern theory and bring it down to earth» (18). Like her hypertext-enchanted peers, this aphoristic language serves primarily to reify postmodern theory, to demonstrate its truth by pointing to its instantiation in a physical object. Evidently, this practice of reification seems ironic coming from a scholar informed by postmodern theory. But Turkle's object-orientation is indeed instructive for theorists looking to engage in formal experimentation. Rather than considering objects as opportunities for reifying various theories, however, we might consider objects as vehicles for *testing* or *generating* theories. For this to be most effective, experimenters would be required to create their own objects to think with.

More recently, Turkle refined her object oriented theory by proposing the term «evocative object,» which she identifies once again as a way of bringing «philosophy down to earth» (2007, 8). In the anthology *Evocative Objects*, Turkle moves away from the reifying narrative about the computer as an embodiment of critical theory, and turns instead to the way in which ordinary objects can serve as epistemic repositories, embodying an individual's unique way of knowing. Many authors in Turkle's anthology, for example, discuss «how an object tied the author to intellectual life--to building theory, discovering science or art, choosing a vocation» (5). The essays in this collection are all acts of reification, but they don't set out to prove this or that postmodern meme. Rather, they are reifications of an individual's emotional and intellectual way of being; the objects encapsulate specific components of human experience. From a cynical perspective, the book's focus on «evocative objects,» many of which are off-the-shelf items, betrays a certain reification of capitalist consumption, as if the only way that we can possibly understand ourselves is through the objects we consume. But what I would like to rescue from Turkle's work is the focus on creating objects that facilitate thinking about how experience and knowledge are shaped. It could be argued that the authors in Turkle's work are «creating» or at least repurposing their objects of consumption; by means of narrative, they are endowing ordinary objects with philosophical significance. Applied Media Theorists should engage in a similar productive (rather than consumptive) activity, but their work should involve literally designing the objects as well, not simply picking them off the shelf.

Perhaps the greatest contribution that Turkle can make to Applied Media Theory is not her focus on objects, but her focus on application. Turkle's recontextualizing of postmodern theory and media studies within the realm of psychology is what makes her work valuable. By engaging in extensive interviews with computer users and by discussing her own personal experiences, Turkle exemplifies what Jay Bolter calls an «anthropological strain» in media theory, a strain that refuses to maintain a critical distance from the object of study. This intimate engagement with the object of study is suggestive of the sort of practices I am proposing for Applied Media Theory. AMT might result not only in the creation of new media artifacts, but in the application of media theory to anthropological or psychological studies of the impact of technology on human behaviour.

3. Epistemological Engine

In *Bodies in Technology*, Don Ihde lays out a new of plan of attack for critical theorists engaged with questions concerning technology. This study is meant as a corrective to what Henri Lefebvre has called Western philosophy's *denial* and *abandonment* of the body through a «process of metaphorization» (407). In Ihde's words, «the history of epistemology is one of different attempts to *disembody* the knower or to hide his or her embodiment» (68). For media critics, as Ihde suggests, this willful denial points to a state of helplessness and a willingness to forego agency in the material world of technological production. If critics of technology expect to produce more than a retroactive and impotent response to technology's manifold implications on human being, then they must enter into technological «situations» -- not just through the production of reactionary critical discourse, but at the «research and development stages as well as with the later applied ethics stages» (xx). Ihde's goal is to bring philosophy down to earth not in order to legitimize theories, but to shape the ways in which objects (in Ihde's case, technological objects), are produced.

Like Turkle's later work, Ihde proposes a theory of «situated knowledges,» rooted in the belief that epistemologies are shaped by the materiality of being. But rather than developing this theory out of «evocative objects» of all shapes and sizes, Ihde turns toward the products of technoculture, out of which he draws the concept of the *epistemological engine*:

The devices I shall use are those that bring human knowers into intimate relations with technologies or machinic agencies through which some defined model of what is taken as knowledge is produced--I shall describe *epistemology engines*. My devices will be particular machines or technologies, which provide the paradigmatic metaphors for knowledge themselves. And through these narratives, I shall trace the visible and invisible roles of bodies. (69)

With this method in hand, Ihde moves from the camera obscura to video games, the internet, and VR as a way of identifying epistemic shifts from early modernity to postmodernism. His goal is to demonstrate that it is through physical interaction with the world, «in the mutual question and interacting of the world and ourselves,» that «things become clear» (86). In other words, the best way to understand the philosophical implications of technological «things,» we must actively engage them. In doing so, we have an opportunity to become producers, rather than passive consumers of technology.

Unfortunately, in *Bodies in Technology*, Ihde's model of the *epistemological engine* is itself retroactive, for he chooses as engines technological objects that have already been developed (camera obscura, e-mail, VR, etc.), and he subjects them to a process of metaphorization. Were Ihde to call for philosophers of technology and media critics to invent their own *epistemological engines*, then he would be thinking like an Applied Media Theorist. Of course, it is not conventional for humanities and social science scholars to create their own media artifacts--except of course for printed essays and the odd hypertextual archive. One purpose of AMT is to provide scholars with a model for engaging in formal experiments with new media for the sake of intervening in the formation of digital culture. But in order to do so, we must learn to think more like engineers or digital artists than like philosophers or critical theorists. Indeed, the term *applied media theory* itself may seem redundant to digital artists, many of whom already view new technologies as tools to express ideas about the impact of technology on society and the human condition. These artists, from Laurie Anderson to Stelarc, generally approach the tools not as experts, but as tinkerers, dilettantes. In the process of working with the tools, they have an opportunity to think about and with them, to engage in an intimate investigation of their materiality and their potential to shape meaning and experience. Applied Media Theory imports this provisional methodology into the social sciences and humanities, providing a method for researchers to become research/creators.

4. AMT in the Critical Media Lab

The Critical Media Lab (CML) at the University of Waterloo is an interdisciplinary unit designed to support the work of humanists and social scientists who wish to use new media as a means of engaging in a formative critique of technoculture. Artists from Canada and abroad work with researchers in the CML on projects that challenge the boundaries between art and science, research and creation. The research/creation projects outlined here, for example, are specifically targeted to reflect on the nature of embodiment in an increasingly computerized culture.

Dreadmill : a treadmill hardwired to a computer so that a runner's speed determines the appearance of a projected video. In performances of 5-7 kms, I run on the device and discuss the impact of technology on the human body. This project was designed as a form of embodied rhetoric that attempts, in the terms of Brian Rotman or Katherine Hayles, to *put the body back into* digital discourse. *Dreadmill* is the first iteration of a « triathlon » series of physical computing projects that will also include cycling and swimming. (<http://www.dreadmill.net>)

OncoGeiger : a computer interfaced with a Geiger counter that generates public created in collaboration with patients in a cancer clinic. Patients in the clinic will be working with the CML to provide texts and images that express their experiences related to cancer diagnosis and treatment. These expressive elements will be stored in a database on a computer in the clinic, and they will be released in a large-scale projected image when the computer detects radioactive energy. The project combines experimental physical computing with expressive therapy in the attempt to turn radiation into a positive, generative force. *OncoGeiger* demonstrates how technology itself is neutral ; it can cure just as well as it can kill.

MESADG : a Mobile, Embodied, and Socially Active Digital Game that combines geocaching, biofeedback, and social networking. The game equips players (adolescents at a local public school) with a Blackberry device and wireless heart monitor, which they use to follow GPS coordinates , photograph specific objects in their built environment. and upload the images to complete a puzzle on a web site. As the adolescents play the game, CML researchers will be carefully monitoring their activity patterns and heart rate, using a sophisticated tracking system developed in the lab. The game is part of a study investigating new disruptive computing devices that increase the physical activity and environmental awareness of adolescents.

Cycle of Dread : a stationary bicycle hardwired to a computer so that a rider's speed and heart rate determine the outcome of a nonlinear, animated narrative. The goal of this project, which is a sequel to *Dreadmill*, is to develop new modes of *embodied narrative* that draw on the formal potential of digital media. The first iteration of the project is an interactive public art piece in which the stationary bike (a modified, antique penny farthing) is positioned on a deserted pedestrian walkway over the main street in the city of Kitchener, Ontario. As the participant pedals the bike, a ghostly image, based on William Blake's painting, « Death of the Strong Wicked Man », will fly across the bridge. A future iteration of the project, which is designed for gallery display, will involve a more complex animated narrative developed in collaboration with UK animation artist Dane Watkins.

Technology and Terror Management : an ongoing project in psychology and cultural theory that investigates how technological gadgetry and rhetorics of

technological progress serve to mitigate death anxiety. The project suggests that technoculture is a powerful worldview that buffers individuals from everyday fears and existential anxiety related to the inevitability of death. The lab's most recent experiment (100 participants) demonstrated that a discourse on technological progress mitigates death anxiety more effectively than a less specific discourse on « human progress ». The study is the first step in a more rigorous investigation of the psychology of technoculture.

These projects, which move from scientific research to digital art and back to scientific research, represent the cyclical and generative nature of Applied Media Theory. In this selection of studies, the seemingly morbid focus on the relationship between technology and human finitude reflects the ideology and practice of AMT, which embraces human embodiment, and seeks to engage in technological culture at the ground level, with the intent of shaping it rather than responding to it.

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