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THEOPRAXESIS AND THE FUTURE OF H'MMM IN THE UNIVERSITY: AN INTERVIEW WITH GREGORY L. ULMER

In early 2015, Craig Saper and Victor Vitanza, in consultation with Gregory Ulmer, edited a collection essays by Ulmer addressing the social, cultural, political and institutional changes underway in the apparatus, or "social machine", shift from literacy to electracy, *Electracy: Gregory L. Ulmer's Textshop Experiments*. As Saper and Vitanza explain in the preface, the significance of Ulmer's work is the re-motivation of theoretical knowledge into applied knowledge: "Ulmer takes us from Derrida's Grammatology (knowing) to an Applied Grammatology (doing and making)"[1]. Many of the essays in this collection are preambles to his book projects, such *Applied Grammatology* (1985), *Teletheory* (1989), *Heuretics* (1994), *Internet Invention* (2003), *Electronic Monuments* (2005), and, most recently, *Avatar Emergency* (2012).

As early as 1981, Ulmer recognized the coming influence of electronic media on culture and society, writing that "the humanities disciplines are in a state of transition that is leading them, however gradually, to a complete redefinition, a reapportionment of boundaries. […] The consequence of the theories of deconstruction, *écriture*, semiotics, and so forth for academic work are clear, at least in general terms—the dissolution of the boundaries separating the officially recognized educational institution from the culture as a whole: from the mass media and the entertainment industry. In epistemic terms this means that the educational institution is entering the television age"[2]. In contemporary parlance, the "television age" has given way to networks facilitated by and enhanced by computing technologies. Two years later, in 1983, Ulmer would argue that electracy might best be understood in relation to the late-nineteenth and twentieth century avant-garde, who provide "the very technique[s] for popularization, for communicating the knowledge of the cultural disciplines to a general public"[3]. Since the initial claims, Ulmer has traced the historic and contemporary development of the emerging apparatus (including the institutional changes paralleling the shift from literacy to electracy) in the development of a "new wave" pedagogy that includes the triad of knowing, doing, and making—*theopraxesis*.

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[1] Saper, Craig J., Gregory L. Ulmer, and Victor J. Vitanza. *Electracy: Gregory L. Ulmer's Textshop Experiments*. Aurora, CO: Davies Group, Publishers, 2015. viii.

[2] Ulmer, Gregory L. "Barthes's Body of Knowledge." *Studies in 20th & 21st Century Literature* 5, no. 2 (1981). 14. doi:10.4148/2334-4415.1107.

[3] Ulmer, Gregory L. "The Object." In *The Anti-Aesthetic: Essays on Postmodern Culture 1983,* edited by Hal Foster,190. Port Townsend: Bay Press, 1983.

In the following interview, conducted over email between January and May 2015, I wanted to get a sense of how Ulmer came to this research project and what advice he might offer young and emerging scholars like myself, coming of age in the age of electracy. As someone interested in seeking what Ulmer has sought throughout his career, we begin with a reflection on his career as a teacher, scholar, and life-long student, and his thoughts on the future of the University, its shifting role in the wider public sphere, and the future of the arts and humanities in civic discourse. As he notes, he has recently promoted "the acronym H'MMM to identify the disciplines responsible for inventing the rhetoric of electracy (as distinct from the equipment): *Humanities + Movies Music Media*." For Ulmer, this new rhetoric "depends on a new collaboration and syncretism among all the disciplines now isolated from one another in the silo architectonics of literate learning" and is informed by "what we bring to the table, native to our own disciplines and skills."

After an illustrious career spanning more than forty years, Ulmer retired from his position as Professor of English and Media Studies at the University of Florida in December 2015. Over the course of his career, he has been, and continues to be, a pioneer in exploring the apparatus shift from literacy to electracy. He also holds the Joseph Beuys Chair at the European Graduate School in Saas-Fee, Switzerland and as a founding member of the Florida Research Ensemble. Here he offers reflections, meditations, and proposals for ways in which we might re-apportion the boundaries between academic disciplines, the University as Institution, and the public/civic sphere.

FIGUEIREDO: What defining moments throughout your career have informed your perspectives on the art and humanities mission?

ULMER: This interview is an opportunity to reflect on my career, since I will retire at the end of 2015, having taught at the University of Florida since 1972. *Avatar Emergency* (2012) was an attempt to articulate the experience of learning undergone during those decades, but who is to say when a career begins (the difference between inception and beginning)? I am willing to commit some simplifications at this point, while acknowledging the principle of immanent cause (the circularity or metaleptic nature of "event"). Derrida provided a guiding question, in his introduction to Husserl's *Origin of Geometry*: "Husserl repeatedly and obstinately returns to a question which is at bottom the following: how can the subjective egological evidence of sense become objective and intersubjective? How can it give rise to an ideal and true object, with all the characteristics that we know it to have: omnitemporal validity, universal normativity, intelligibility for 'everyone,' uprootedness out of all 'here and now' factuality?"[4]

Let me add parenthetically that theoretical texts contain many such statements, each one suggesting a potential research agenda. Students are advised to keep an eye out for these proposals, any one of which could be the basis for a book, or several books. Here is another one that provided some direction, by Julia

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[4] Derrida, Jacques. *The Origin of Geometry*. New York: Nicolas Hays, 1977.

Kristeva. "All avant-garde experience since the late nineteenth century, from the *poete maudit* to schizophrenia, demonstrates that it is possible for a signifying process to be different from the process of unifying conceptual thought"[5]. I could cite quite a few more. My essays often have their points of departure in such *sentences*. I suppose the relevance of this observation to your question is that the majority of defining moments have been events of reading (or watching), and perhaps that is necessarily the case for any scholar. Derrida and Kristeva represent poststructuralist thought as a whole, which is guided by heuretics (the logic of invention). I am testifying, not explaining, which is how all my work should be received. They are or were attempting to invent or reimagine "philosophy" for electracy (I am using my terms for epochal phenomena).

There is one moment of action that might deserve mention in this context--the trip to Europe during Spring Break, a week in March, 1980. I will go into some detail because the drama continues intellectually and emotionally to this day, in ways that may be worth reporting, as something to notice in one's own career. This interview for me is a debriefing, reporting to you from the conclusion of a career about what happened, in case it might be useful to you as a young scholar. No doubt the most important reading encounter was the discovery of Jacques Derrida's *De la grammatologie* (published 1967) in a Cambridge bookstore in 1970, while writing my dissertation on Rousseau (at Brown). My dissertation on a "Rousseau tradition" left out any reference to this reading, since I could not understand what to do with it at the time. Tenured in 1977, I was free to commit to a program of inquiry directed by Derrida's texts, without too much concern about where it would lead, or how practical it might be. Tenure exists for this reason—to protect and encourage taking the long view. Not every gambit pays off, so to speak, but enough do, obviously.

The research agenda included reading as much theory (philosophy) as possible, while teaching courses in the history of criticism (and also Intro to Humanities, Composition, film studies). Derrida's grammatology was associated with the *Tel Quel* school, within French theory of the 1960s and 1970s, which is where I encountered "apparatus." I attended the charter year of the School of Criticism and Theory (Irvine, 1976) where I met Hayden White, who was on the faculty that summer. Hayden was responsible for Hal Foster inviting me to contribute to his collection, *The Anti-Aesthetic* (Foster invited White to do an essay on "theory," who passed it along to me). Hayden also got Johns Hopkins University Press (publishers of the translation of *Of Grammatology*) to read *Applied Grammatology* (1985), the book that came out of the commitment made in 1977. A collateral reading event during that research on poste(e)-pedagogy was discovering the work of the German performance artist, Joseph Beuys.

Which brings me to March, 1980, when I went to Europe with hopes of meeting in person my intellectual heroes. The list included Roland Barthes, along with Derrida and Beuys. First stop was Düsseldorf, where I did manage to catch Beuys at home (I have told that story elsewhere). In Paris, my colleague John Leavey (one of Derrida's translators) arranged for us to attend Derrida's seminar,

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[5] Kristeva, Julia. *Revolution in Poetic Language*. New York: Columbia University Press, 1984. 185.

out of which came an invitation to dinner (followed by attendance at the Cerisy-la-Salle colloquium on Derrida that summer). I am not sure why I felt the need to meet these individuals, although the motivation was, in part, fandom.   The hoped-for encounter with Roland Barthes did not go so well. On February 25, 1980, crossing the street in front of the Collège de France, Barthes was struck by what I heard was a laundry truck. I got the news from a concierge whom I asked for help in finding Barthes's office. I was told that Barthes was in the hospital, where he died on March 26, 1980.

Over the years I reflected on what questions I might have been able to pose to Professor Barthes, if by chance he had crossed the street a few minutes before or after the fatal moment. Most likely he would not have been at the College (I had no appointment, no contacts), so there would have been no opportunity for an interview. I had not yet begun to write, let alone publish, the work about which I needed advice. It is possible to name the "sources" of my program: Derrida for grammatology and trace (electracy); Barthes for mystory; Beuys for the research ensemble and consultancy collaborations (his Free International University for Creativity and Interdisciplinary Research); Tel Quel for apparatus. This list is not an acknowledgements inventory, but it covers the cardinal directions of my work.

All of this by way of commenting on the event of Roland Barthes's final seminar, completed just before his death, but not published in France until 2003, and the translation in 2011, by Columbia University Press. Reading the translation in 2012 was an uncanny experience. After Derrida provided the grammatological frame for my search for electrate pedagogy, I turned to Barthes for further guidance, recorded in *Teletheory*, in which I introduced mystory ("Derrida at the Little Bighorn"). In *Internet Invention* (2003) I relied on Barthes's theory of photography to describe and test image logic. I used the term "haiku logic," alluding to the importance of haiku poetry for Barthes's poetics, which he used as a relay for understanding the aesthetics and even metaphysics of imaging. Barthes developed his theory in *Camera Lucida*, which he wrote in the period between his penultimate and ultimate seminars (1979). I was surprised, nonetheless, when I discovered that the first of the two semesters (dated 1978-79) published in *The Preparation of the Novel*, was devoted entirely to haiku. I accepted that discovery as retrospective advice and confirmation, as if I asked for counsel: *what will I have done?*

The advice received from this ghost or shade extends to my present enterprise, following the *vector* (sense as *sens* or "direction" as well as "meaning" in French). The title of the two-semester seminar refers to the program Barthes adopted for his work at the Collège de France. Following an epiphany that occurred during a trip with friends, and inspired by Dante's *Vita Nova* as a way to write mourning, Barthes, admitting that his age of 63 was not quite "in the middle of one's life," dedicated himself to a new start in his work and life, which was to be the writing of a novel. Only eight pages (an outline) were found among Barthes's papers, but it is clear from the seminars and related lectures delivered during this period, that what Barthes had in mind was not the conventional practice of withdrawing to one's garret to write in isolation. His relay was Proust's *In Search of Lost Time*,

but even that touchstone was not the model, in that there was (perhaps) never any intention of composing literature, but a commitment to living and working in a way informed by an effort to give shape and significance to a life that included the practices of language in all their modes. Barthes after all was one of the inventors of *écriture*, the notion of "text" guiding Tel Quel inquiry, which was a syncretism integrating the various divisions of Writing (creative, fictional, poetic, documentary, critical, theoretical). The act of writing itself, the moment of writing, had become foregrounded in modernism, dating back to the vanguard in nineteenth-century Paris, continuing through the generation between the wars (Blanchot, Bataille, Bréton and the like), and received by Tel Quel, who must be counted as part of the French "new wave" phenomenon (new novel, auteur cinema).

Barthes intuited something that only gradually became not just a possibility but a reality as electracy progressed. He received the prompt from Sartre's *Nausea,* an autobiographical fiction (faction). The protagonist Roquentin is a scholar writing a book on a figure from the period of the French Revolution.   The novel dramatizes an existential crisis whose philosophical terms Sartre worked out after the war in the massive *Being and Nothingness*. Roquentin's frustration and conclusion is that it is not possible to both live and tell (not at the same time). One must choose, which is another version of Kierkegaard's lesson, that life can only be understood backwards, but it must be lived forwards. *Preparation for the Novel* is Barthes's exploration of this dilemma or fantasy, testing for himself the possibility of breaking through the limit Sartre traced in *Nausea* and *Being and Nothingness*, such that writing and living are one. This project correlates with my current research on electracy, which enables and requires a similar syncretism, putting back together what the apparatus of literacy necessarily took apart. Electracy operates within a metaphysics different from that of literacy, differing in time, space, and causality. If we do not learn to live and tell, our civilization will not last much longer.   What was impossible in literacy becomes commonplace in electracy, within the environment of light-speed technics that I call flash reason. A current instantiation is Facebook, but social media are just the beginnings of this possibility of the *do-say*.

FIGUEIREDO: As an institution, what role do you see the university playing in the wider public sphere?

ULMER: Institution formation is one of the three dimensions of an apparatus, along with technology and identity experience. The passage from orality to literacy, studied extensively in grammatology, is a template for understanding our own condition of passage from literacy to electracy. The working heuristic is that a certain functionality of civilization persists through the epochal transformations.   Learning is undertaken in every civilization.   The greatest pleasure according to Aristotle, learning is often described as a manifestation of evolution itself. The operating features of learning, however, must be invented anew for each apparatus. The invention of literacy includes not only a technology of writing but also school as an institution and selfhood as identity experience, whose collective dimension is democracy. Plato's Academy (the first school in the Western tradition of literacy) opened a new social space devoted to

inventing the metaphysics of literacy ("metaphysics" as shorthand for the account of reality affiliated with an apparatus). This invention included a systematic rejection (Contrast in the heuretic CATTt) of the religious metaphysics of orality.

I have written at length about apparatus shift, so I will not go into detail here, or just enough to make the point that the university is the contemporary heir of the Greek academies. The university is a native institution of literacy, just as the church is a native institution of orality. While literacy accounts for reality in terms of material cause, addressed through reason structured institutionally as science, oral metaphysics accounts for reality in terms of God, or gods, the divine or supernatural order, addressed through ritual, revelation, sacrament, performed as worship. Oral subjectivation is through the experience of spirit, with collectivities organized as tribes. The oral apparatus continues in literacy, and the religions of the book adapted oral metaphysics to the new apparatus. Literacy does not replace orality, but supplements it with a new and rival metaphysics. We are familiar with the painful, slow, and violent emergence of literacy out of orality. There is something about science that is fundamentally unacceptable to religion, at least at the institutional level.

This apparatus analogy reminds us that professors of the university are in the position relative to electracy held by priests of the church when confronted by science, as in the case of Galileo, or to use a contemporary instance, when confronted by Malala Yousafzai and her demand that girls be allowed to undertake Western secular education. There is no one unified response of church as such: different religions adjusted differently to the relationship with scientific metaphysics. The analogy template offers a slot for an institution native to electracy, responsible for its metaphysics in the context of new modes of subjectivation. This natively electrate institution is the corporation, and more specifically the entertainment corporation invested in mass communications. There is a correlation relating the three apparatuses (apparati) to the three intellectual virtues established in Western philosophy, from Aristotle through Kant, continuing today in cognitive psychology. Oral metaphysics develops the axis of right-wrong (ethics and politics of practical reason, or moral freedom); literate metaphysics developed the axis of true-false (knowledge or understanding what is necessary through pure reason). Electrate metaphysics develops the axis of attraction-repulsion (pleasure-pain, joy-sadness) (imagination expressing the sensory body through the aesthetic judgment of taste). Each apparatus institutionalizes at the macro level one of the intellectual virtues—theory, praxis, poiesis (knowing, acting, making; thought, will, feeling; knowledge, purpose, affect). The evolutionary challenge is to integrate and correlate all three powers collectively as well as individually, to constitute the electrate egency of *theopraxesis*. This behavior is emerging today as interface culture.

Electracy begins historically with the industrial revolution, so that the apparatus transformation includes the era of revolutions—technological, political (bourgeoisie coming to power), and metaphysical—the revolutions across all fields of knowledge and representation associated with modernisms. You recall that the political revolution occurred in the context of the Enlightenment, and

included the burning of churches. The Soviet revolution banned or suppressed religion, just as religion had suppressed science for so long. Spirit and self persist as identity experience in electracy, supplemented now by brand.   Collective subjectivation (the functionality of avatar) enters a new dimension with the corporation achieving legal standing as person whose speech is money.   The commodity form is electrate *écriture,* the general equivalent structuring exchange through the market, whose interface logic is Dadaism, dreamwork, and related innovations originating in aesthetic practices of new media.   Philosophers have noted that the electrate equivalent of Descartes's *cogito* in literacy is Freud's *desidero* (I desire).   My variation on this generative analogy is adapted from Georges Bataille.   Descartes wrote *Je pense donc je suis* (I think therefore I am). From Bataille and his General Economy of expenditure (as distinct from the Restricted Economy of profit and productivity) we may extrapolate a phrase, *depense donc jouis*, to say "waste therefore enjoy." This register of *jouissance* is the "target" of electrate learning.

This proposal clarifies what is at stake: electracy does not replace or attempt to occupy the same axis as the existing apparati; it introduces and opens a new dimension whose priority is the axis of well-being versus disaster grounded in the corporeal body of desire and drive (life-death).   Here then is the issue in response to your question.   What is the relation of the university to the dimension of desire? The transcendent or consistent order remains learning, shifting the target of education from belief and reason now to affect (attraction-repulsion).   The corporation institutionalizes collective human desire, and as such it is not ethical or reasonable as a collective entity.   Can a corporation learn? The first corporation in the modern sense is the East India Company (1600), formed to manage the spice trade, institutionalizing human taste (especially for pepper).   Corporations exist to make money, not to worship gods or prove the laws of nature.   Our question then becomes, what is the relation of the university to the corporation, of knowledge to desire? To what extent are the methods of schooling relevant to educating the corporeal and corporate persons, or to what extent must entirely new pedagogies be invented to promote well-being against disaster? This question guides my collaborations with the Florida Research Ensemble and other colleagues, developing a genre for consultancy called *konsult*.   Konsult is to electracy what dialogue is to literacy (we may return to this ratio later).

FIGUEIREDO: What shifts do think will emerge in teaching and scholarship as the university moves further into the age of electracy?

ULMER: The motto guiding my career project is from Basho: *not to follow in the footsteps of the masters, but to seek what they sought.* Aristotle is perhaps the master in my discipline.   His topical logic, rhetoric, and related inventions persist wherever argumentative writing is practiced, which is to say that the modern university is (still) Aristotelian. As many observers have noted, writing concerns all disciplines to the extent that it is the interface of all pedagogy.   The hard sciences represent their disciplines through courses, textbooks, lectures, papers, journals and the like.   Certain kinds of databases store and retrieve triples, which are the conceptual structures invented in the Greek academies, so computer

science remains literate. Of course to say "literate science" is redundant, like those offers promising a "free gift."

The reason I introduced the term "electracy" in the early 1990s for the digital apparatus was to call attention to the inadequacy of thinking of the contemporary condition as "media literacy."   The limitation and hence disappointment of MOOCs, for example, is that they project literate pedagogy into the Internet. Putting literacy online does not make science electrate, any more than printing the Bible made religion scientific. The motto from Basho makes clear that the challenge of the university today is to do for electracy what the Greek academies did for literacy: invent a metaphysics (operating interface) through which a society manages the dimension of reality made addressable in the new apparatus. MOOCs and related digital archiving are an inevitable first step, similar to the initial work of putting the Greek epics and mythologies into writing, or the printing of manuscripts (the Bible).

The historical analogy shows that once the old media became the content of the new media (McLuhan), users began to observe patterns in the materials not accessible previously. Grammatologists have shown that the logical order of literacy was created by observing and capturing the patterns of concepts in Greek natural language. A similar process of emergence is underway today, as our databases bring into appearance and construct patterns formed in massive information storage. We have not yet learned how to extract "meaning" from these patterns. The challenge is to invent the equivalent of logic and rhetoric by means of which electrate learners may interact with these patterns in order to thrive in the lifeworld. The heuretic assumption is that electrate meaning will not be conceptual, but vectoral (undergone as attraction-repulsion). The goal of konsult is an intelligence of theopraxesis supporting simultaneous and collective understanding-undertaking-undergoing. The ancient aporia troubling the academies was the possible and inevitable disconnect among knowing what was true and communicating truth to others for the sake of acting in the interest of well-being. The perversion of sophistry was and is to exploit this disconnect for personal profit.

An insight of apparatus theory is that technology is only one dimension of a three-part interactive interdependent matrix. Moreover, each dimension has its own genealogy, in a dynamic of emergence that I call the popcycle. Tel Quel theorists in the 1960s emphasized this independence of invention sources to counter the claims of technological determinism. The point of immediate relevance is that STEM disciplines account for only one of the three dimensions, and to the extent that only STEM is taken into account in the invention of electracy, we will create an idiot savant civilization. Or rather, as the template shows, corporations will devise a market metaphysics for electracy by default. At the same time, the Arts and Letters disciplines have not recognized their (our) role and responsibility in the invention of an apparatus. I have promoted recently the acronym H'MMM to identify the disciplines responsible for inventing the rhetoric of electracy (as distinct from the equipment): *Humanities + Movies Music Media*. "H'MMM" with the apostrophe forms an interjection that exists in most languages, that depending on pronunciation signifies either

perplexity, or questioning. "STEAM" inserted "Art" into STEM, which does not go far enough, since in practice STEAM education tends to treat design aesthetics as decoration rather than as structural.

The historical analogy helps locate the site of invention, where the opportunity for transformation may arise. The pattern is that the craft practices are created within the affordances of the new technology, and the new metaphysics eventually in turn is put into a machine (the machinic phylum) contributing to apparatus shift. Some examples of this process are familiar, for example natural language created within oral civilization was put into writing, from which emerged the literate apparatus. In other words, writing is not "alphabetic orality." The invention of new recording equipment in the first century of electracy (the industrial revolution), such as photography, is another familiar example. The lesson is that when a craft skill is put into a machine, as mimetic imaging was put into the camera, human faculties are liberated for other endeavors. Socrates (Plato) in *Phaedrus* warned that writing would destroy memory, and that was true in the sense that learning no longer required *memoria*, the mnemonic techniques to which so much of education was devoted all through the manuscript era, until the invention of print.

The delays and deferrals witnessed in these historical relays are instructive. We haven't even noted the most important instance of this *mise-en-machine* central to the emergence of electracy. The Greek academies focused on the declarative proposition made addressable in alphabetic writing, with Aristotle codifying the logic of true-false and the principle of non-contradiction in the truth table, guiding the logic of forming correct inferences in the syllogism. The invention of computation manifests a certain *bachelor machine* as the Dadaists called their logic or *collagic* (whose defining example, from Lautréamont, is *the meeting of a sewing machine and an umbrella on an operating table*). The computer is the meeting of binary numbers (Leibniz) and an electric switch (Tesla) in a truth table (Aristotle). Most inventions are bachelor machines, and the bachelor machine is a logic native to electracy.

The implication is that when true-false (the primary investment of literacy) becomes machinic, human capacity is liberated to move on to other engagements forming a new apparatus. Modernism is a revolution in H'MMM disciplines in response to putting craft productivity into machines. The lesson is that computing similarly relieves reason to attend to the dimensions of expression set aside in literate metaphysics (Plato excluded poets from his ideal city; Aristotle excluded homophones from reasoning). Institutionally orality adapted to literacy in the form of the religions of the book, while systematically denying, resisting, persecuting science (some more successfully than others). The lesson for universities is to beware of becoming science of the computer. The metaphysics of science (that is, literacy) must not delimit learning if it is to become electrate. Science and religion continue to have important contributions to make to civilization, and electracy in turn is other than either one of them. The historical caveat is that science and school in particular are likely to resist, inhibit, constrain the emergence of electracy, and no doubt for good reason within their own terms, considering the fundamental differences of metaphysics. As noted,

the institution fostering electracy is not school, but the entertainment corporation, which is devoted not to spirit or truth, but desire. The challenge for the literate university is to invent an interface, a curriculum and pedagogy, for education that brings into productive correlation the institution formations of science, religion, and corporation (collective theopraxesis).

FIGUEIREDO: In what ways do you see the arts and humanities paralleling these shifts within the university?

ULMER: One of the motivating themes of my career that led to the work on electracy has been the perplexity (h'mmm!) about why the Arts and Letters disciplines never put into our own practices the discoveries of our objects of study. Physics acknowledged the new cosmology of Einstein, and put it to work. We study and celebrate James Joyce as our Einstein, for example, as perhaps the most important author of the twentieth century, with *Finnegans Wake* constituting a marker of the outer limits of innovation in literature. However, we are not permitted by the rules of the discipline to practice the devices of modernism, whether Joyces's portmanteaus and macaronic puns, Burroughs's cut-ups, Bréton's automatic writing, and the like. "Textshop" referenced in *Electracy: Gregory L. Ulmer's Textshop Experiments* (2015) brings into pedagogy the experimental arts as genres of learning. Apparatus theory helped me understand this resistance to a modernist revolution in pedagogy in metaphysical terms. The avant-garde is post-literate, becoming electrate. The logic of electracy in its pure form was invented in the cabarets of Montmartre, by the avant-garde that emerged in the Bohemian (counter-cultural) enclaves in nineteenth-century Paris. The cabarets such as *Le Chat Noir* and the *Lapin Agile* are to electracy what the Academy and Lyceum in Athens are to literacy. A space for pure desire opened up in Bohemia in this scene, just as a space for pure reason was created in the academies.

The avant-garde created dadaism (to take this one movement as metonym and perhaps quintessential exemplar of the whole scene) explicitly as a rejection of the dominant established modes of representation and the worldview expressed in them, just as Plato rejected the epic and mythology of oral Greece. It is important to recall that dada was practiced as entertainment, as in the Cabaret Voltaire in Zurich during the First World War. Duchamp's notorious *Fountain* is the emblem of vanguard invention because it captures the essence of the mocking or *fumiste* spirit of the cabaret aesthetic. Its logic, of course, is inversion and displacement (deconstruction). Charlie Hebdo, the notorious journal attacked by Islamic extremists, is a contemporary instance of *fumisme*. The art was performed in the setting of *leisure*, which is to say *scholé*. "Scholar" and "school" derive from the Greek *scholé* or "leisure," so labeled to acknowledge that study required leisure time freed from the labor performed by slaves. The new slavery is "work" in the bourgeois marketplace, something repellant to those who fled to the liberating vices of Bohemia.

Here we have the challenge that electracy poses to the university. If the most prominent heir of the Academy today is perhaps MIT, its electrate peer is no school whatsoever, but the pure leisure of Las Vegas (a family face put on a vast

enterprise exploiting desire in the forms of pornography, drugs, gambling). A reason why "entertainment" is underappreciated as an economic power in comparison with STEM is that much of its earnings are black market, under the table, illegal, laundered. To act upon desire in electracy is not sin but crime. Aristotle identified and defined the intellectual virtues in his writings (theoria, praxis, poiesis). Electracy takes up the vices and the challenge they pose to human thriving, not to condemn, suppress, or otherwise displace them, but to engage with the capacity of the body to be affected by pleasure and pain, and the pursuit of desire manifested in behaviors classified as vices because of their destructive effects. Electracy takes the "leisure" in "scholar" to the extreme of play and the existential enjoyment known as *jouissance*, which is not the same as pleasure.

The passage of the university from literacy to electracy (assuming it wants to go beyond the science of computing) leads through the revolution in representation, attitude, and values invented in Montmartre. A first motivation for entering upon this vector might just be the decline and dissipation of H'MMM disciplines, shedding majors, losing support and credibility in the misguided utilitarian STEM and corporate policies of contemporary education. Two options to be avoided are either to double down on literacy (functioning as curators of the museum of the book), or to simulate science by means of popularizations of neuro-aesthetics or pseudo-statistics. Not that neuroscience and statistical analyses, not to mention computation as such, are not relevant to H'MMM. On the contrary, the vector towards well-being against disaster depends upon a new collaboration and syncretism among all the disciplines now isolated from one another in the silo architectonics of literate learning (institutional theopraxesis). The future of H'MMM in the university, however, depends on what we bring to the table, native to our own disciplines and skills. Electracy is fundamentally aesthetic in its mode of intelligence, emotional and affective at the core, grounded in sensory experience. This "aesthetic" dimension has the affinity with digital imaging databases that "reason" has with alphabetic writing, and it has little to do with "critical thinking." The challenge for literate education, of course, is that electrate intelligence is not conceptual. We do not need more books, no matter how intelligent, explaining "affect" as concept or theory. We need a theopraxesis of living well (the avatar function).

As part of apparatus shift, every discipline and every area of the lifeworld was revolutionized, within the history of the age of revolutions. Significantly one of the few domains that avoided the revolution in representation that transformed the arts is pedagogy. The second reason that might persuade the institution of school to undertake fundamental reform is the reassurance that pedagogy and the disciplines are different orders. The sciences already went through the Modernist revolution and put the innovations to work albeit not in their pedagogy. The important point is that nature, physics, and school (in which physics is studied) is each different from the other. Pedagogy is the *representation* of knowledge to learners.   This is the insight that motivated *Applied Grammatology: Post(e)-Pedagogy from Jacques Derrida to Joseph Beuys* (1985). Pedagogy as representation remains pre-Modernist in its realism, its mimetic conventions, its enlightenment values. Here is the challenge: a schooling that no

longer prioritizes reason (which reached its limit). The first step in making school electrate, after putting all the information of knowledge into digital archives, is to create a "new wave" pedagogy, addressing sublime experience (attraction-repulsion at once, as Kant said). The representation of disciplines to learners must adopt the inventions of the Montmartre avant-garde.

Considered from the point of view of vice, attraction-repulsion foregrounds not only desire but stupidity (judging the self-destructive character of vice as behavior), and this confrontation with "stupidity" may be the real deal-breaker in the passage between literacy and electracy. Lacan coined a phrase *a stupid of signifiers* (a collection like *a pride of lions*), to characterize practices of the Unconscious. However "stupid" they may seem as entertainment, vanguard innovations (Dadaism) in practical terms model a *pure creativity.* "Creativity" is the keyword, pre-sold in the marketplace, as they say, if for the wrong reasons. A clue to the relevance of H'MMM in this respect is that Freud, in the context of positivist rationalism, attempting to account for phenomena that exceeded the explanatory powers of (medical) science, appropriated the entire archive of Arts and Letters, remotivated as the Unconscious. As Lacan observed, the Unconscious is structured not just as a language, but as the discourse of a Renaissance Neo-Platonic Humanist. Dreamwork, jokework and the like, and the associated defense mechanisms of human thought beyond the confines of logic (denial, repression, foreclosure), are tropological. In this context it is clear that our current educational policies are the inverse of what is needed if the goal is to become electrate, that is, to develop a metaphysics adequate to the condition of globalization. It is worth repeating: this vector is powered by attraction-repulsion and is metaphysically other than what is right and true. These vectors must be brought into attunement. Made accessible by engines of reason, diagrams of strange attractors are mapping vectors of desire (human weather) beyond logic.

At least two insights follow from this retrieval of the archive of the pre-modern Western tradition in the Unconscious of psychoanalysis. First concerns the recognition that the logics of creativity analyzed both in scholarly and popular forms (lateral thinking and the like) are isomorphic with Dadaism and dreamwork. There is an isomorphic correlation among hypermedia, modernist arts, psychoanalysis, which together are a point of departure for the design of heuretic (inventive) pedagogy. The philosophers have pointed out that the *mise-en-machine* of true-false logic enables civilization to take up alternative excessive registers of thought, expressed not only in "madness" (psychoanalysis), but also in the productivity of children, primitives (oral apparatus), and arts. Arthur Koestler's classic study of creativity demonstrates that the operation of *bisociation* underlies three basic human capacities (virtues or powers): getting a joke, making art, having an idea.

The apparatus relevance of this convergence is that schooling in literacy was almost entirely "left-brained" (to use shorthand): from topical methods in the manuscript era through contemporary university curricula, school concentrates on how disciplines are verified, not how they are discovered. While some observers (including Koestler) insist that the cognitive functions of proof and

invention are the same, they agree nonetheless that in practice the conditions and behaviors that promote discovery are constitutively different from those governing the established field. Once knowledge is conventionalized, it forgets and even actively suppresses its invention genealogy. This institution formation of literacy was perhaps necessary, and is in fact the institutional extension of the selective focus on propositional statements in Aristotle's syllogisms, to the exclusion of all the other dimensions of language (consigned to rhetoric, meaning not amenable to science). We are living with the dire consequences of this divide, in the form of truthers and climate science deniers, for example.

The sophists at Fox News are competing with scientists to control the policy formation of democracy, whose limitations as a literate invention are increasingly evident. Electracy exceeds the reach of selfhood and democracy, just as it exceeds the capacities of the book and libraries. The university is to the potential of learning what a propositional statement is to the expressive potential of natural language. There is much more capacity available but not yet addressed in the system (microcosm-macrocosm). A lesson is clear: maintain the literate disciplines of verification going forward, but supplement them with a new wave pedagogy of creativity. The emblem of this arrangement might be the scene of Diogenes with his plucked chicken interrupting Aristotle's students attempting to define man as "a featherless biped." Dadaism as logic, as interface within digital archives, concerns discovery, invention, creativity. What is found in this way must also be submitted to verification, the proofs of evidence-based methods. The downside for the disciplines is that their techno-rationalist pragmatism along with their agenda set by corporate funding will be relentlessly mocked by the *fumisme* of the creative wing. The saving grace, in principle, is that creation and proof are undertaken by the same learner (theopraxesis). The aporia is clear: to become electrate institutions of learning must entertain stupidity.

A related lesson is to expose the limitations of cognitivist approaches to learning, to the extent that they maintain that when speaking of the "non-conscious" dimension of human intelligence they do not mean the psychoanalytic unconscious (as in Kate Hayles's "cognitive non-conscious"). In the context of electracy such declarations, and the associated explicit exclusions of considerations of memory, imagination, emotion and the like, are self-refuting and lead to dead ends (as the history of Artificial Intelligence indicates). Or, to be fair, cognitivism may be credited with squeezing the last remaining potential of reason out of literate science. It is our equivalent of Ptolemaic solutions to the planetary motion. As I have said before, electracy shows that the vector of digitally native learning is rather through "stupidity" and "vice" related to the drives and desire of embodied affect (the stuff of tragedy), and not through enlightenment. Wittgenstein observed that one may solve all the scientific problems and still not have touched the human question. Cognitive non-conscious is appropriate as far as it goes (neuro-science). Lacan recommended psychoanalysis as the "science" addressing love, hate, ignorance: the axis of attraction-repulsion, which is invulnerable to genomes, neuroscience, and the like (the theology of science). Leaving it to church, school suspended, reduced, set aside, postponed this third axis and attempted to bypass or overcome it through the power (virtue) of reason. One description of our present aporia

might begin: *a scientist, a broker, and a jihadi walk into a casino....* In "Pretty Boy Floyd" Woody Guthrie sang, "some will rob you with a six-gun, some with a fountain pen." Let us not be mistaken: all three of these types are equally dangerous.

FIGUEIREDO: How does your work address the circumstances you describe?

ULMER: I have carried on at length, so I will try to be brief here. This vector of attraction-repulsion passes directly through the H'MMM disciplines, if only as object of study at this point. The operating interface of electracy must be invented with and through these forces, to educate the desiring body both individual and collective, and to promote a general theopraxesis. The corporation, as we know, recently won recognition as "person" from the United States Supreme Court, including the category switch of counting money as speech. Is that not an instance of a urinal in a museum? There is no going back from this innovation (it marks a vector). In any case, this is where my work is relevant, as a pedagogy [post(e)-pedagogy] conducting the passage of the university from literacy to electracy. Heuretics (the logic of invention) supplies the procedures for bootstrapping from one metaphysics to the other (there is no escaping metaphysics). Mystory and the Image of Wide Scope (*Teletheory*, *Internet Invention*), is a genre within which students practice the kind of thinking associated with invention (epiphany, flash reason, bachelor machine). It may seem counter-intuitive, given all the talk of new materialism, the non-human, the animal, and the like, but the apparatus template proposes that the organizing region of electrate metaphysics is not the universal, the general, the transcendental, the anagogical, but the *sinthome* (symptom) microcosm of the singular person. Of course this personhood is undergoing the new subjectivation, beyond spirit and self, attuning with the emerging collective subject, in a process I described as "avatar." Brand subject is "singular" in the sense of "threshold" singularity in complexity theory, "threshold" being the site at which daimons dwell. This "daimon" or avatar functionality (the order of measure or limit) is what the apparatus must be designed to support. In any case, electrate pedagogy opens a new relationship of the learner with disciplines, positioning them in the world as a whole, as ordinator, or (to use the cybernetic term) *governor*, responsible for syncretizing institutions. I have used the label "egent" to associate "governor" with "agency" of a new kind ("egent" as "they lack" in Latin). Such a function becomes possible in the digital apparatus, supporting a "systems" or "field" identity that Bateson called "mind" (person using tool, for example), or Deleuze and Guattari "desiring machine." Egent identity and behavior are relational, rhizomatic, syncretic, networked, emergent, ecological.

As Derrida advised[6], it is not possible or necessary in the closure of one metaphysics opening onto another, to escape directly from dialectic (literacy). Rather, one occupies dialectic "in a certain manner" (in the style of aporia and impossibility). Conventional accounts of professional practice describe systems of problem solving. "Problem solving" is the axiom of literate learning, to the point that cognitivists declare problem solving to be *thinking* as such. Certainly it

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[6] Derrida, Jacques. *Of Grammatology*. Baltimore: Johns Hopkins University Press, 1976.

is one kind of thinking, as Heidegger reminded with his notion of epochal enframing, but one that delimits all literacy. The opening for electracy is to reintegrate what literacy differentiated-- the intellectual powers of theory, praxis, and poiesis. Descriptions of expert problem solving (the kind of thinking that lends itself to AI) outline the circuit of learning: 1) problem situation; 2) expert schema mapped onto the situation; 3) individual taste or style; 4) solution applied. Peirce's series of inferences could be mapped onto this loop: abduction, deduction, induction, or even moreso his sequence of firstness, secondness, thirdness, always circulating back through zero. This "zero degree" (Barthes) needs further development. Case studies of praxis or thought-in-action in applied professions mention taste only in passing, and assume that it is some kind of intuition.

Heuretics (electrate pedagogy, post(e)-pedagogy) opens up this position of taste or personal judgment, style, manner, to make it as rich and complex as the position of expert schemata. The historian of individual creativity in science, scholars such as Gerald Holton and Howard Gruber who study individual creativity, identified this neglected dimension as that of predisposition or propensity of an individual. Logic and empirical testing are obvious dimensions of scientific practice. Creative approaches add *predisposition*: recurring themes transversing epochs and apparati. These patterns are found in individuals and collectives alike. Persons in the process of creative performance apply predispositions formed in childhood development that have nothing to do with disciplines but that guide the imaginations of the learner. Mystory (which is to electracy what historiography is to literacy) is the pedagogical genre that includes predisposition in learning, formalized in the Wide Image, the phrase introduced by Gerald Holton referring to the three or four fundamental images organizing the imaginations of learners. Choragraphy augments these accounts, to describe learning as an interactive mapping between mental models and the cosmologies or anagogies of popcycle institutions enframing the learner's world (popular culture, community history, career specialization). The proper place of mystory in the larger pedagogy and curriculum of a university becoming electrate is to be included in the feedback loop of problem solving, as a fourth inference procedure called "conduction."

My current work extends mystory, choragraphy, and heuretics to the genre of *konsult* in the context of "consulting" as interface metaphor for extending electracy beyond school to the broader society. Consulting already exists as an institutional practice for collective pedagogy, a discourse by which expert knowledge is transferred between institutions, often from a university discipline to a corporation or government. Konsult accesses and depends upon the entire digital apparatus, just as dialogue was the genre invented in the Academy relative to the apparatus of literacy, ordered by the interface metaphor of conversation. I won't go into this new phase of heuretics, other than to note that it depends upon my collaboration with the Florida Research Ensemble. The immediate project is with Jack Stenner and some other colleagues, the interactive installation "Murphy's Well-Being," a konsult addressing the Cabot/Koppers Superfund Site in Gainesville, Florida.

A longer range project is with Jan Holmevik at Clemson University, with the working title of Electracy 101: a pedagogy for online learning in the global environment opened by MOOCs, especially for those for whom English is a second language, and who may not be familiar with conventional literate schooling, or not the American version.   A related project is with Mark Goulthorpe who is a Professor of Architecture at MIT. We are collaborating on a proposal for curriculum and pedagogical reform specifically addressed to STEM discipline colleagues and institutions recognizing the imperatives of change beyond present conventions. I continue to collaborate with colleagues from the beginnings of the FRE: John Craig Freeman and Barbara Jo Revelle, as well as some more recent initiatives that may lead in interesting directions with Carol Lafayette, and also Craig Saper (textshop). I am counting on these colleagues as well as a number of graduate students still in progress to keep me motivated after retirement. Electracy is a collective invention, of course, underway for a couple of centuries now, not determined in advance, with emergent properties not predictable by definition. Perhaps the most basic relevance of my work is just to make this point: the apparatus is invented, and all disciplines are relevant and important in the complex popcycle of innovation.

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