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Sysemics and Semiotic Informatics

WHAT IF WE WANTED A NOTION LIKE *DIFFÉRANCE*, but without the associated metaphysics of absence? Of course, this is to accuse Jacques Derrida of replacing the metaphysics of presence with a metaphysics of absence. Because the notion that deconstruction, in its subversion of the metaphysics of presence, produces figurations of absence is widespread in post-structuralist discourses, I cite only one source of this prevalent theme: "We may say that whereas Saussure focuses on two (or more) linguistic signs and infers a relationship connecting them, Derrida focuses on the gap as the important element, thus converting Saussure's presumption of presence into a generative absence: *différance* is not, does not exist, is not a present-being (on) in any form [. . .]. It has neither existence nor essence. It derives from no category of being, whether present or absent" (Hayles 45–46). Derrida of course also writes that both absence and presence are produced by play (*jeu*): "freeplay is always an interplay of absence and presence, but if it is to be radically conceived, play must be conceived of before the alternative of presence and absence; being must be conceived of as presence or absence beginning with the possibility of play and not the other way around" (*Writing* 369).

Aside from a new concept of *différance* that avoids these common confusions related to presence and absence, what if we also sought 1) a removal of the injunction against percepts and signifieds; 2) a less obscure and more readable style; 3) a non-Othering of technoscience, calculation, and computation as a discursive Other; 4) a dispensing of the standard two-level lingo (latent/manifest, *différance*/ difference, ontological/ontic, depth/surface, etc.); and 5) a different name, and perhaps even a different program. In this essay I undertake a first step towards a digitally native concept of difference that is less dependent on intimated textual invisibilities.

The framework of classical cybernetics—which has evolved into the contemporary field of informatics—provides a way of understanding this freeplay between manifest presence and latent absence, or between surface textuality and hypostructural freeplay. Namely, the cybernetic distinction between information and organization as orders of relative closure-openness articulates the difference/*différance* distinction in a manner that allows us to avoid conundrums over simultaneous is-and-is-not-ness or "both present and absent at the same time." While a history of the founding concepts of systems theory is beyond the scope of this essay,

the distinction can be clearly illustrated by framing the example of footprints in the sand in Peircean concepts: in the economy of information, the footprint is iconic (resembling its source), while in the economy of organization, the footprint is indexical (of the order of causality). The relative openness or closure of systems toward matter/energy, information, and organization are useful distinctions that can be applied to "upgrade" the post-structuralist position in our increasingly informatic society.

In the above citation on freeplay, Derrida is describing in cybernetic terms the systemic forces of *organization* (in freeplay) as they work upon the configurational openness of *information*—after all, information (like society or computers, the examples used in the *Principia Cybernetica*) can be *organized*. However, deconstruction "proper" has for many reasons (its general refusal of philosophical rights to perception and calculation, its consignment of science to ontic or practical levels, its contra-empirical hermeneutic stances, and so on) gone without this kind of conceptual assistance; it also assumes authority and jurisdiction over the hypo-conceptual domains of all other discourses. In other words, Derrida claims jurisdiction over any other discourse that happens to use concepts, and in principle that includes all possible discourses. Thus, for instance, in his view cybernetics "itself is intelligible only in terms of a history of the possibilities of the trace as the unity of a double movement of protention and retention. This movement goes far beyond the possibilities of the intentional consciousness" (*Of Grammatology* 84).

Derrida places cybernetics here to usurp it by way of the phenomenologically inscripted trace, if only to usurp phenomenology in the next discursive move. He attacks cybernetics on the basis of phenomenology in order to attack phenomenology, which is an odd gesture. It is as though he needs to show up both cybernetics and phenomenology at once through the power of the trace, which takes down both cybernetics and phenomenology in one fell two-sentenced swoop. But this is in fact his second swipe at cybernetics, since earlier in the same text he had written that, "Whether it has essential limits or not, the entire field covered by the cybernetic program will be the field of writing. If the theory of cybernetics is by itself to oust all metaphysical concepts—including the concepts of soul, of life, of value, of choice, of memory—which until recently served to separate machine and man [. . .] it must conserve the notion of writing, trace, gramme [written mark], or grapheme, until its own historico-metaphysical character is also exposed" (*Of Grammatology* 9).

Much is remarkable here, but, for now, I wish to highlight the following:

1) Derrida claims to have an observational perspective over "the entire field" of cybernetics. Is this not totalizing language? Would he not be bothered if a cyberneticist spoke of "the entire field" of philosophy, for instance?

2) Cybernetics is here imagined to be circumscribed or "covered" by the field of writing—as though there were any cyberneticists walking around claiming that somehow it has escaped literacy as a core constituent or feature of its civilization. Clearly, Derrida wishes to position all forms of writing as the discursive "turf," as it were, of his philosophy, even though generally speaking it can't read, for example, math or circuit diagrams or computer code. Otherwise, what could philosophy possibly do with them?

3) It is unclear that the cybernetics program was or is (in its current incarnations as systems theories and informatics) to "oust all metaphysical concepts." This acts like a projection that imagines that the particular interests of Heidegger and Derrida have somehow been appropriated by cybernetics, which in general seems unconcerned with cleansing or ousting or exposing or showing up the metaphysical tendencies of all discourses.

4) Derrida appears to be somewhat jealous or anxious that another discourse might "get there first" (for instance, deconstructing binaries like animal/human or mind/machine). Since a tenet of systems theory is that all systems possess universal features in some way, the notion of "system-ness" (what makes something a system) has the potential to undermine all other categorical differentiations. Derrida needs to inscribe systems theory as a writing system, so that philosophy can wrest "command and control" of cybernetics strictly on hermeneutic grounds. And because systems theorists write, philosophy can attempt to claim the semiotic ground out from under them, through deconstruction, an activity that is probably of little interest to systems theorists, since they are absorbed with tasks such as building robots and other technical feedback systems.

5) It is the wildest construction of a straw man to suggest that somehow cybernetics would not "conserve the notion of writing," and it is unclear to whom or to what Derrida is referring. In fact cybernetics is concerned with many more forms of writing than philosophy: natural language, speech synthesis, circuit diagrams, information visualization, telemetry, mathematics, algorithms, computer code, audiovisual sensors, and so on. As such, it appears to be much more a possible "master" of forms of writing than anything deconstruction can conjure in its reliance on a single methodology: hermeneutic critique in qualitative natural language.

A footnote in the citation above might possibly "authorize" Derrida's position to survey the entire field of the systems theory of his time: "Wiener, for example, while abandoning "semantics"—and the opposition, judged by him as too crude and too general, between animate and inanimate, etc.—nevertheless continues to use expressions like "organs of sense" and "motor organs" "to qualify the parts of the machine" (*Of Grammatology* 324). What Derrida had named "the entire field of cybernetics" is here explicitly grounded only in this reference to "Wiener, for example"—a reference that does not even name Wiener's text (likely *The Human Use of Human Beings*). In Derrida's reading Wiener's use of the word "organ" presumably imbricates Wiener in metaphysical undoing, as though every use of a metaphor necessarily auto-destructs a whole discourse and research program.

Derrida's complaint about Wiener's use of the term "sense organ" is a familiar enough trope in criticisms of systems theory that find in it an unacceptable bias towards organicism and a dependence on biological models (see Johnson 148). But in fact the situation is exactly the reverse: systems theory configures the organic as a subfield or subset of the general notion of "organization." It is not the case that cybernetics starts from a metaphor of organic life and then projects it onto the universe; quite the contrary, it models systems in general, and life subsequently appears as just one form of organized system. A word search performed on a pdf of Wiener's *The Human Use of Human Beings* using the word "organ" finds its use on 53 of 225 pages (<http://21stcenturywiener.org/wp-content/uploads/2013/11/

The-Human-Use-of-Human-Beings-by-N.-Wiener.pdf>). In the first 58 pages these words occur with these frequencies: organization 17, disorganization 3, self-organization 2, social organization 1, organize(d) 5, organisms 5, organic (life) 1, organic (social) 1, organ (human) 8, and organ (machine sensor metaphor) 3. Given the overall context of Wiener's project, the use of the word "organ" does not imply any kind of metaphoric or metaphysical semantic "confusion" or subversion in this text with respect to machines and life. Systems theory is generally concerned with the organization of disparate elements into self-interacting wholes, and in Wiener's text there are two dozen instances of the concept of "organization" that precede the first mention of a machine's sensory "organs." Furthermore, when Wiener uses "sense organ" to refer to what today we call "sensors" he provides sufficient and explicit definitional clarity: "Modern automatic machines such as the controlled missile, the proximity fuse, the automatic door opener, the control apparatus for a chemical factory, and the rest of the modern armory of automatic machines which perform military or industrial functions, possess sense organs; that is, receptors for messages coming from the outside" (48–49). Clearly, Wiener does not use the language of a machine's "sense organs" at all naively or without reflexive awareness, as Derrida insinuates. A critical distinction must also be made between practicing science and engineering and reporting on it after the fact for general public discussion. Surely it takes more than occasional clunky diction employed by a single author to deconstruct something like "the entire field" of cybernetics?

Regardless, Wiener repeatedly uses analogies that cut across the categories animal and machine, individual and society:

Mind was analogous to the formal structure and organization, or the software aspect, of a reasoning-and-perceiving machine that could also issue instructions leading to actions (19–20); [Machines] therefore must possess effector organs (analogous to arms and legs in human beings) (58); It is my thesis that the physical functioning of the living individual and the operation of some of the newer communication machines are precisely parallel in their analogous attempts to control entropy through feedback (52); Now that certain analogies of behavior are being observed between the machine and the living organism, the problem as to whether the machine is alive or not is, for our purposes, semantic, and we are at liberty to answer it one way or the other as best suits our convenience (58); For all these forms of behavior, and particularly for the more complicated ones, we must have central decision organs which determine what the machine is to do next on the basis of information fed back to it, which it stores by means analogous to the memory of a living organism (59); This is the basis of at least part of the analogy between machines and living organisms. The synapse in the living organism corresponds to the switching device in the machine. (60)

It is doubtful that a discipline that locates its founding concepts in recognized analogies — in other words, pattern recognition — across observed phenomena owes as much as Derrida implies to Greek metaphysical categories. For example, Socrates was not familiar with the concept of entropy, and negentropy is fundamental to system concepts of organization. Wiener does not identify, through either metaphor or conflation, man with machine with organism with society, but there are analogous processes in all forms of organization: "When I compare the living organism with such a machine, I do not for a moment mean that the specific physical, chemical, and spiritual processes of life as we ordinarily know it are the same as those of life-imitating machines. I mean simply that they both can exemplify locally anti-entropic processes, which perhaps may also be exemplified in many other ways which we should naturally term neither biological nor mechani-

cal" (58). It is also in this area of the text that we find the supposed rejection or "abandonment of semantics" that Derrida cites in his footnote.

> Such words as "life," "purpose," and "soul" are of course grossly inadequate to precise scientific thinking. Although these terms have gained their significance through our recognition of the unity of a certain group of phenomena, they do not in fact furnish us with any adequate basis to characterize this unity. Whenever we find a new phenomenon that partakes to some degree of the nature of those that we have already termed "living phenomena," but does not conform to all the associated aspects that define the term "life," we are faced with the problem whether to enlarge the word "life" so as to include them or to define it in a more restrictive way so as to exclude them. We have encountered this problem in the past in considering viruses, which show some of the tendencies of life—to persist, to multiply, and to organize—but do not express these tendencies in a fully developed form. Now that certain analogies of behavior are being observed between the machine and the living organism, the problem as to whether the machine is alive or not is, for our purposes, semantic, and we are at liberty to answer it one way or the other as best suits our convenience. As Humpty Dumpty says about some of his more remarkable words, "I pay them extra, and make them do what I want." (57)

Wiener does not do anything that can be fairly described as "abandoning semantics." In fact, he discusses the semantic issue at length and persistently. He frames it as a problem, even as an undecidable. And he does so with a certain humility: as a scientist, the semantic question exceeds what is here useful to science, and he cannot presume too much authority on all possible uses of this set of words. Throughout his text he reinforces the notion that he is drawing analogies between similar (entropy-related) phenomena across differing kinds of systems (organic, human, social, machinic). Wiener indicates that the semantics of life and the inanimate are not particularly helpful toward "precise scientific thinking." What is clearly indicated is the general notion that scientific discourse depends to a very high degree on formalized symbols as much as figurative language. A high degree of practiced literality is required (quantities, logical operands, measures, computations, precision-calibrated instruments, etc.) relative to which semantic slippage is neither helpful nor relevant. Not only is Derrida's reading of Wiener careless and ungenerous, but Derrida also accepts the semantic issue as a remainder. In other words, the semantic issue is a bone tossed to the humanities from scientific discourse. This "bone of contention" between Wiener and Derrida is not in fact "abandoned" by Wiener: Wiener simply declares that it has no place in his project and offers reasons as to why this is the case. And perhaps most importantly, Wiener's use of the figure of Humpty Dumpty explicitly underscores that the difference between life and machine is to be constructed. It is very strange indeed that Derrida would criticize Wiener on this point.

I propose the term "sysemics" as the discursive appropriation of *différance* for informatics, as a gramme without the taint of a metaphysics of absence. Sysemics would put archi-writing to work without the apartheids of brain labor that divide quanta from qualia and play from calculation. As we have seen, Derrida positioned cybernetics as being devoid of hermeneutic rights to counter the claims of semiotic-philosophy via an inflated notion of archi-writing that covers or circumscribes all possible discourses, including cybernetics. This essay, by contrast, positions deconstruction as readable by the classic cybernetic categories—information, organization, energy/matter (see *Principia Cybernetica*)—of relative openness and closure, which offer a more suitable explicative framework of *différance* in our

present "information age." By claiming archi-writing in the same but inverted manner that systems theory claims all systems, including writing systems, deconstruction can then go to work on any discourse, even those that it cannot read or write (mathematical formulae, circuit diagrams, line graphs, flow charts, oscilloscope displays, wire frames, etc.). This inflation of writing as archi-writing appears as a strategic reaction specifically opposed to the discourse of systems theory, which, in its discovery and theorization of a science of analogies across all systems, can be understood as being in competition with another discourse—the semiotic-philosophy of deconstruction—with regards to the rights "over" language and sign systems generally. In other words, this is a discursive "battle" between a discourse on systems that claims the right to circumscribe even sign systems and a semiotic-philosophy that circumscribes all other discourses as sign systems and claims a kind of jurisprudence over all forms of writing (even tattoos, music, warning labels, marks on a ruler or compass, and so on) in the name of the trace. In short: Derrida proposes a "general theory of writing" (Johnson 8) to counter and oppose a general theory of systems that would in principle include sign systems.

This antipathy toward cybernetics is widespread in contemporary humanities (see, for example, Filimowicz, "Digital and Analog"). As Siegfried J. Schmidt has noted, "in the mind of many literary scholars the concept of empirical research has long been associated with two things in particular: 'blind positivistic belief in facts and objectivity' and 'disregard of history, mind, and subject'" ("Empirical" 319; see also Schmidt, "Literary"). As a result, Derrida can configure Wiener as a textual figure to be dismissed prior to being read with even a dash of the close reading skill that is supposed to be a hallmark of humanist inquiry. The counter reading of deconstruction by cybernetics is a conceptual and strategic reversal intended to reposition the notion of systems as meta-figurative and constitutive of texts or to situate the textual in general as a system amongst systems, unprivileged, and thus susceptible to systemic inquiry that deflates writing, uncovering its "covering" conceits and returning it to non-totalizing proportions.

As envisioned here, sysemics would leave as undecidable the question of whether a systemic representation has "merely" metaphorical or ontological status: "Empiricists, however, may be dismayed by the metaphorical application of complexity concepts to interpret social systems inasmuch as complexity science claims a literal, non-metaphysical applicability to physical, economic, social, and cultural events" (Gunaratne 188). Methodologically, I propose that the humanist status of systems can be resolved by regarding it as a heuristic that is in epistemic play, as simultaneously metaphor and ontology (or ontophor/metalogy). Because heuristics are commonly understood as both models and problems, sysemics can be understood as a heuristic production that is ontological as a problem (its terms generate problems in their organization) but metaphorical as a model of actual states of affairs or "reality": "Principles of dynamic wholeness are basic in the modern conception of the world" (Bertalanffy 135).

One significant stumbling block for the postmodern sensibility is the notion of a systemic "whole" to begin with. The formal imagination of postmodern discourses has opted for tropes that oscillate between "liquidity" or "fluidity," on the one hand, and "fracture" or the "schizo" and "split," on the other. Subjectivity (and subsequently its productions) are posited as either too fluid (like water) or

Table 1. Academic database search terms indicative of whole-aversion in humanist discourses

Search Term/ Database	Humanities and SocSci Abstracts 1983—current	JSTOR
schizo	17	2432
split subject	44	386
split self	45	310
fractured subject	5	37
split identity	36	253
fluid self	31	108
fluid identity	143	218
liquid self	4	9

too brittle (like peanut brittle) to be capable of achieving any approximation of systemic whole-organization, even if such organized wholes are conceived as fundamentally open rather than closed systems. Above is a table of search terms in two academic databases that could inform a reflexive database of tropes (fluid/fracture) illustrative of this whole-aversion in the formal imagination of postmodern discourses.

Sysemics, as a metatheoretical perspective situated in the conceptual reversal between the description of all systems articulated in signs and signs as a system amongst systems, then has the unique task (amongst systems theories) of arguing for the legitimacy of whole-organized forms amidst a general discursive animus to what is essential for the concept of systems in literary fields.

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