
Screening a Digital Visual Poetics

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Book was there, it was there.

Gertrude Stein

“O sole mio.” The contemporary elegy, Peter M. Sacks has observed, mourns not only the deceased but also the ceremony or medium of grief itself.¹ Recent trends in digital media theory signal the absorption of initial, utopian claims made for electronic hypertextuality and for the transformation of both quotidian and literary discourse via the radical enfranchisement of active readers. Born in 1993, the democratizing, decentralizing World Wide Web—at first, the “almost embarrassingly literal embodiment” (George P. Landow) of post-structuralist literary theory, a global Storyspace—has in a mere six years been appropriated, consolidated, and “videated” as a forum for commerce and advertising.² Meanwhile, with the public recantation

1. Peter M. Sacks, *The English Elegy: Studies in the Genre from Spenser to Yeats* (Baltimore: Johns Hopkins University Press, 1985), p. 299: “Sociologists and psychologists, as well as literary and cultural historians, consistently demonstrate the ways in which death has tended to become obscene, meaningless, impersonal—an event either stupefyingly colossal in cases of large-scale war or genocide, or clinically concealed somewhere behind the technology of the hospital and the techniques of the funeral home.” It is the technology, of course, that is key: and this applies not just to the technologically *obscured* death of human bodies, but to the technologically *assisted* figural “death,” first of the author (Barthes, Foucault), then of the printed book (Birkerts et al.), and now of the techno-socialistic “network” (with military antecedents) that the Internet once was.

2. See George P. Landow, *Hypertext: The Convergence of Contemporary Critical Theory and Technology* (Baltimore: Johns Hopkins University Press, 1992), p. 34. “Storyspace” is the

of hypertext's virtues becoming a kind of expiation ritual,³ the initially minimized *warnings* of new-media theorists such as Landow, Jay David Bolter, Michael Joyce, Stuart Moulthrop, and others are being echoed with increasing frequency. These thinkers have seen from the start that electronic *hypertextuality*, or the computerized proliferation of symbolic writing, was only a step on the way to general electronic *hypermediation* dominated by iconic visual, rather than symbolic textual, forms. Bolter's recent thinking in particular emphasizes the continuing marginalization of (hyper)text as the "videating" media of television and film adapt and encroach on previously textual environments of the Web.⁴

As if in response to this (as though, in the accelerating vistas of electronic writing, there were time enough for anything like "response"), Web-based or distributed electronic writing has evolved from its first alphabetic-(hyper)textual forms toward diverse incorporations of, and hybridizations with, the static or kinetic image. At the same time, poets and visual artists working from a tradition of typographic experimentation that reaches back to futurism and Dada, and includes twentieth-century visual and Concrete poetry, are using networked, heterogenetic writing spaces to create and distribute a new electronic visual poetry. This growth of visual writing may be seen as a response to the technological acceleration that permits more and more complex forms of information—from simple text, to static images, to animated and then to user-interactive text-image clusters or constellations, what might be called "lex/icons"—to coexist in one "medium" or information-delivery system. It might also be seen as evidence that commoditizing the videation of the Web invites subversive uses of that videation—just as, say, the video art of Bill Viola is dependent on (and talks back to) the same technology that extends the commodity value of a blockbuster (and then Blockbuster) film.⁵ As Bolter suggests, "True electronic writing is not

hypertext authoring tool developed by Jay David Bolter and Michael Joyce in 1985–86; for an account of their collaboration, see Michael Joyce, *Of Two Minds: Hypertext Pedagogy and Poetics* (Ann Arbor: University of Michigan Press, 1995). The term "videation" is Marjorie Perloff's; see *Radical Artifice: Writing Poetry in the Age of Media* (Chicago: University of Chicago Press, 1991), p. 74.

3. See, for example, Laura Miller, "www.claptrap.com," *New York Times Book Review*, March 15, 1998, p. 43—a likably pugnacious, if typically defensive, riposte to enthusiasts.

4. See Jay David Bolter and Richard A. Grusin, *Remediation: Understanding New Media* (Cambridge, Mass.: MIT Press, 1999).

5. See Marjorie Perloff, "The Morphology of the Amorphous: Bill Viola's Videoscapes," in *Poetry On & Off the Page: Essays for Emergent Occasions* (Evanston: Northwestern University Press, 1998), pp. 309–321.

limited to verbal text: the writeable elements may be words, images, sounds, or even actions that the computer is directed to perform."⁶

Out of habit, we identify the "modernist" poetic text as "materialized," and the "postmodernist" poetic text as "dematerialized," ephemeral, a "simulacrum." The extent, however, to which "materiality" (taken as sensuous, extraverbal reality, something more than the functional-instrumental, "transparent" use-value of a word) is integral to much postmodernist poetry, poetics, and art practice might be seen as reason to interrogate this habit of thought.⁷ Theories of postmodernism—those, for example, of Jean Baudrillard, Jean-François Lyotard, or Fredric Jameson—that replay a "break" or "divide" tend, overtly or covertly, to become entangled in the problem of the "McLuhanesque": that is, they are built around the notion of a *revolution* in the rise of media, an event that must dramatically and irrevocably have changed the essential fabric of daily life in the developed West. That these theories describe at least the *perception* of some significant cultural and historical complex called "postmodernism" is unworthy of dispute. What a synthetic and structuralizing theoretic overview may neglect (especially when it goes seeking diagnostic or prophetic authority) is the hybridity of practice by which even self-identified avant-gardes, such as the American L=A=N=G=U=A=G=E writers, tend to locate themselves historically. Postmodernist poets' continued use of the self-consciously "material" print media of high modernism, in tactical response to life in a postmodern, technologically mass-mediated society (even while they embrace new electronic media as well), is a literally "literary" form of resistance to both the dematerializing, utilitarian ends of technology—what artist Simon Penny terms the "engineering world view"⁸—and the pure theoretic mode that, in its estrangement from or resistance to art practice, reverts to apocalyptic (or, less often, utopian) prophecy.⁹

6. Jay David Bolter, *Writing Space: The Computer, Hypertext, and the History of Writing* (Hillsdale, N.J.: Erlbaum, 1991), p. 26.

7. For accounts of the importance of a materialized writing practice to the "Language" writers, see, e.g., Marjorie Perloff, *Radical Artifice* (above, n. 2); Bruce Andrews and Charles Bernstein, eds., *The L=A=N=G=U=A=G=E Book* (Carbondale: Southern Illinois University Press, 1984); Charles Bernstein, *A Poetics* (Cambridge, Mass.: Harvard University Press, 1992).

8. Simon Penny, "The Virtualisation of Art Practice: Body Knowledge and the Engineering World View," *Art Journal* 56 (Fall 1997): 30–38; available on the Web at <http://www-art.cfa.cmu.edu/www-penny/texts/Virtualisation.html>.

9. Critical-theoretic estrangement from practice is a by-product of the professionalized economy of the university. One remedy is for writers to work also as critics, editors,

Taking their cue from Bruno Latour's *We Have Never Been Modern*, Bolter and Richard A. Grusin have recently argued for the notion of a "genealogy of media" that situates new digital media in the long history of mediated and "remediated" representation in Western art and literature.¹⁰ While they do not deny that the "digital revolution" is a significant addition to this genealogy (Bolter, in particular, could hardly be accused of minimizing the impacts of digital technology), they take pains to oppose Jameson's lapsarian insistence "that there is something special about the mediatization of our current culture" placing unprecedented pressure on the reality of the subject.¹¹ Another line of argument runs from the "cyborg" socialist-feminism of Donna J. Haraway through N. Katherine Hayles's recent writing on virtual reality and the "posthuman."¹² Both thinkers envision a hybrid subjectivity in continual oscillation between human materiality, or bodily agency, and technologically assisted paramateriality or para-agency. The cyborg or posthuman neither dystopically rejects the automaton, nor transcendently dissolves itself in it, but instead moves continually between nature and culture, organic and synthetic, individual and collective, partaking of both (and enjoying the advantages of each).

Perhaps more concretely, recent work such as Johanna Drucker's *The Visible Word* and Adalaide Morris's *Sound States* anthology are efforts to bring this technologically *enhanced* rather than *erased* subjectivity back into the postdeconstruction field of literary and cul-

and publishers. By all indications, the "small press revolution" of the 1960s and 1970s continues unabated today—not only in a profusion of printed chapbooks and magazines, but also in the networked environments of electronic publishing. It is interesting to note, however, that many young writer-editor-publishers—who make extensive use of telecommunications for the personal networking that is integral to what is virtually a "gift economy"—still prefer the more costly print medium for publication. This is not, I think, mere anachronism, and it raises more interesting questions about community, activism, and the "future of the book" than the diffuse cultural debate conducted in the popular media.

10. Bolter and Grusin, *Remediation* (above, n. 4).

11. *Ibid.*, p. 57.

12. See Donna Haraway, "A Cyborg Manifesto: Science, Technology, and Socialist-Feminism in the Late Twentieth Century," in *idem*, *Simians, Cyborgs, and Women: The Reinvention of Nature* (New York: Routledge, 1991), pp. 149–181; N. Katherine Hayles, "The Seductions of Cyberspace," in *Rethinking Technologies*, ed. Verena Andermatt Conley (Minneapolis: University of Minnesota Press, 1993), pp. 173–190; *idem*, "Text Out of Context: Situating Postmodernism within an Information Society," *Discourse* 9 (Spring/Summer 1997): 25–36; *idem*, *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature, and Informatics* (Chicago: University of Chicago Press, 1999).

ture studies.¹³ Drucker's post-Derridean "hybrid theoretical model" for the "materiality of the typographic signifier" in futurist and Dada writings, and the efforts of Morris, Hayles, Garrett Stewart, Marjorie Perloff, and other *Sound States* contributors to revisit the "secondary orality" of Walter Ong,¹⁴ return our attention to the implications of art practice for "ephemeralist" theories of the postmodern. It is significant, I think, that Drucker is a hybrid practitioner herself, producing challenging artworks as well as works of scholarship and criticism in the field; and also that so much of the work assessed in Perloff's invaluable criticism is that of the European historical avant-garde, then the line of American modernist, "radical modernist," and postmodernist art/theory running from Gertrude Stein to the objectivists, Charles Olson, and L=A=N=G=U=A=G=E, all of whom insisted on the essential reciprocity of theory and practice, articulation and demonstration, ephemerality and concrete agency. "Materiality," as Drucker envisions it, is constituted broadly by "interpretation"—the reader-viewer's interaction with the work—even if that interpretation involves, in Haraway's or Hayles's sense, a kind of mixing of oneself into the medium.

And even if the work and its medium, I will suggest here, are wholly digital: bits of data stored on a disk, or the electronic event of transfer by which those bits are reproduced and moved from one location to another—re-created, that is, by the interface with which the reader summons them. The putative demise of textuality, inevitable or no, on the electronic network known as the World Wide Web is presently accompanied by a flourishing of poetry and text-based or alphabetic art that takes for granted not only its own dynamic, kinetic, virtual, and interactive visuality, but also—contrary to alarmists' fears—a real, material, bodily human "interactor." In what follows I propose to offer an essay, a tentative gesture, at a digital visual poetics: a poetics that draws by necessity on an entire century's worth of language art and visual poetry, while at the same time formulating ways to read and to look at, to "screen," the new and seemingly newly ephemeral artifact of the electronic visual poem. Having incorporated electronic hypertextuality, this new poem is now appearing as visually "kinetic" (literally, in electronic

13. Johanna Drucker, *The Visible Word: Experimental Typography and Modern Art, 1909–1923* (Chicago: University of Chicago Press, 1994); Adalaide Morris, ed., *Sound States: Innovative Poetics and Acoustical Technologies* (Chapel Hill: University of North Carolina Press, 1997).

14. Walter J. Ong, *Orality and Literacy: The Technologizing of the Word* (London/New York: Methuen, 1982).

motion) and “virtual” (“moved through” by an electronic simulacrum of the reader).

1. Virtual Reality, Trip Masters, and “Machinic Heterogenesis”

Of Robert Carlton (“Bob”) Brown’s invented “reading machine,” Jerome McGann notes, “Brown’s *jouissance* of the word anticipates the Derridean moment by forty years, and prophesies as well the practical emergence of computerized word-processing and hypertextual fields.”¹⁵ Now that we see with machine eyes, protocybernetic moments abound; and one of the prime difficulties in formulating a poetics of the moment is the risk that what seems blindingly new may, at a turn in thought, reveal itself to be no more than a version of what one already knows. This is the paradox built into Steve McCaffery’s and bpNichol’s notion of the “book machine,” another prototechnology whose hybrid formula is appealingly blunt, and, more importantly, familiar. In speaking of a digital visual poetics, I want also to avail myself of McCaffery’s and Nichol’s “unacknowledged present,” itself an adaptation of Gertrude Stein’s “continuous present,” and in many ways a more suitable trope for the new media than “avant-garde.”¹⁶ As a theory of coterminous theory and practice, as a formalism of intermediate genres, and as a progressive politics of “partial, real connection” (Haraway), a digital visual poetics may operate on the fringes and in the interstices of many other discourses. Rather than breaking new ground, it may write within the *zona inexplorada* of a never wholly discovered, validated, or otherwise bounded network field. Rather than staking a claim to replace (and then be replaced), it may form a temporary node or rhizome (Gilles Deleuze and Félix Guattari) within a constellation of temporarily related nodes.

Because virtual reality (VR) simulation technologies offer the most radically manipulable operations on visual experience, they will be central to a digital visual poetics. With these operations come problematizations of subjectivity and agency that literally enact the “postmodern problem,” offering users a practical experience of Nietzschean “eternal recurrence,” of Heidegger’s destruction of metaphysics, of the Foucauldian and Barthesian deaths of the subject, or of the arational consciousness of the religious mystic or narcotic-

15. Jerome McGann, *Black Riders: The Visible Language of Modernism* (Princeton: Princeton University Press, 1993), p. 88.

16. Steve McCaffery and bpNichol, *Rational Geomancy: The Kids of the Book-Machine; The Collected Research Reports of the Toronto Research Group, 1973–1982* (Vancouver: Talonbooks, 1992).

hallucinogenic drug user.¹⁷ VR is *the* material problem of the post-modern, the machine that came along to test not only our prophesied disappearance into the Great Simulacrum, or the endless play of *différance*, but also the conditions under which theorists may plausibly claim authority for such prophecy. What does it mean to proclaim, with Baudrillard, that “we have all become ready-mades . . . dedicated . . . to mediatic stupefaction, just as the ready-made is dedicated to aesthetic stupefaction”?¹⁸ Landow, Bolter, and others have noted the nihilism in Baudrillard’s insistence that “we” can no longer perceive the differences between “junk” and “art,” surface and depth, the simulated and the real.¹⁹ Like the parents and educators of the 1980s “Dungeons and Dragons” scare, the prophets of technoapocalypse do not trust “us” to know informatic constructions from our own bodies; such things are “known to happen.”²⁰ The extent to which this relies on a notion of “the public” as irrational—a notion often used to excoriate high modernism, but perhaps as useful to describe the neutrality of pop art and other self-consciously elite infatuations with “low culture”—has yet to be acknowledged at a time when we are still struggling with the paternalism of theories that have tried in good conscience, but without complete success, to deconstruct their *own* grounds. What is most puzzling in the alarmism of VR opponents (or VR advocates, for that matter) is the conviction that an average “cybercitizen” will inevitably utilize a mimetic technology mimetically—that is, in further flight from “real,” not virtual, reality, in further flight into something that is, however convincing, still an illusion.

This disjunction between perceptions of design and perceptions of usage illuminates some of the ways in which cultural theory and cultural practice misunderstand each other. “Theorists,” whose professional specialization is as much an economy as any other, imagine all sorts of figural ghosts and simulacra where there are still real human bodies sitting in front of the televisions and computer

17. For an interesting discussion of simulation technologies and contemporary “drug culture,” see Avital Ronell, “Our Narcotic Modernity,” in Conley, *Rethinking Technologies* (above, n. 12), pp. 59–73.

18. Jean Baudrillard, “Aesthetic Illusion and Virtual Reality,” in *Jean Baudrillard: Art and Artefact*, ed. Nicholas Zurbrugg (London: SAGE, 1997), pp. 19–27, p. 22.

19. See Landow, *Hypertext* (above, n. 2), pp. 20–22; Bolter and Grusin, *Remediation* (above, n. 4), p. 194.

20. In the early 1980s, the popularity of information-based role-playing games such as “Dungeons and Dragons” led to hysteria when a handful of juvenile crimes (which would otherwise have been attributed to Satanism or heavy-metal music) were taken for proof of damaging immersion in the games’ fantasy.

screens, or strapped into the VR apparatus. For their part, “practitioners”—poets and artists—grow estranged from an abstraction that they may come to see as irrelevant to their material labor or craft-based interaction with machines, and correspondingly they neglect the possibility that we may not *only* be bodies, in just the sense hinted at so powerfully by VR. It *should* go without saying that as nineteenth-century realism furnished the flashpoint for modernist irrealism in the same principal media, a “Victorian” birth of mimetically biased virtual reality implicitly and automatically signals some form of self-revision. It seems less likely that “all the hard-won vision of the twentieth century is to be surrendered to wire-frame realism in the twenty-first” than that it will be carried into further permutations both cyclical and diachronic.²¹ The crucial fact is that, as William Dickey puts it, the computer is a tool “placed in our hands so that we can create with it something it was not intended for.”²² This hybrid and noninstrumental engagement of the technology is a locus of poetical-aesthetic and political response, and I want briefly to trace its manifestation in three relevant topics of cultural discourse.

a. Hybrid Theoretical Models: “The Materiality of the Typographic Signifier”

“The experimental typography which proliferated in the early decades of the twentieth century,” writes Johanna Drucker, “was as much a theoretical practice as were the manifestos, treatises and critical texts it was often used to produce.”²³ Boundaries separating literary from art practice, practice from theory and criticism, and one literary or visual genre/medium from another were notably porous at the flourishing of the historical avant-garde (Russian and Italian futurism, Dadaism, cubism, etc.). Drucker’s book *The Visible Word: Experimental Typography and Modern Art, 1909–1923*, while restricted to a defined historical period, offers a model for the “materiality” of visual-linguistic signs that looks forward through what she calls the “nearly proto-electronic and cybernetic” sensibility of F. T. Marinetti²⁴—its kinetic adumbration of a “dematerialized,” “wireless,” or “electronic” medium.²⁵

21. Joyce, *Of Two Minds* (above, n. 2), p. 206.

22. William Dickey, “Poem Descending a Staircase: Hypertext and the Simultaneity of Experience,” in *Hypermedia and Literary Studies*, ed. Paul Delany and George P. Landow (Cambridge, Mass.: MIT Press, 1991), p. 145.

23. Drucker, *Visible Word* (above, n. 13), p. 9.

24. *Ibid.*, p. 109.

25. *Ibid.*, p. 138.

Drucker's model emerges from a critique of two opposed ideologies: that of phonic presence in structuralist linguistics, and that of the self-absenting play of inscribed *différance* in deconstructive critique. Derridean critique, and poststructuralist theory more generally, have encouraged an unproblematized definition of "information," and "information art," as *les immatériaux*.²⁶ For Drucker, Derrida's critique of Saussure, and of a metaphysics of presence more generally, "cancels the possibility of ever apprehending *substance*" in the ambiguous, simultaneous, or oscillating visual materiality of type, which combines "the arbitrary (or at least, conventional) character of the linguistic sign with the more complex features of the visual sign."²⁷ In response, she offers a counterformulation, a purposefully heterogeneous discourse for visible language that hints at contemporary implications for what Richard Lanham has called "the complete renegotiation of the alphabet/icon ratio" inherent in desktop publishing²⁸—and that extends itself to the same questions of subjectivity that are problematized by VR:

The concept of materiality, then, cannot simply be grounded in a Derridian deconstruction. Nor can it, after Derrida's critique, return to a placid and unquestioning acceptance of the concept of substance as self-evident presence or being. The question of whether it is possible to posit the existence of material as substance without a metaphysics of presence lurking inevitably behind it remains to be resolved.²⁹

Insofar as it brings "visual presence" to meet "literary absence," this notion of materiality is supported by a "hybrid theoretical model which contains certain internal and irresolvable contradictions."³⁰ Derridean "relational, insubstantial and nontranscendent difference" and "phenomenological, apprehendable, immanent substance" are held together at risk to the authority of both; they are bound (or not) in a postdeconstructive hermeneutics that, like Deleuze and Guattari's figure of the rhizome, writes fluid lines of al-

26. In a brief history of computer poetry in Europe since 1959, Philippe Bootz highlights the 1985 *Les Immatériaux* exhibition at the Pompidou Center as "a climax for A.L.A.M.O. [a computerized offspring of OuLiPo] and . . . a starting point for the dynamic poetry which was to develop in the following years" in France and elsewhere (Philippe Bootz, "Poetic Machinations," *Visible Language* 30:2 [1996]: 118–137).

27. Drucker, *Visible Word* (above, n. 13), pp. 34–39, pp. 39 and 34.

28. Richard A. Lanham, *The Electronic Word: Democracy, Technology, and the Arts* (Chicago: University of Chicago Press, 1993), p. 34.

29. Drucker, *Visible Word*, p. 39.

30. *Ibid.*, p. 43.

terity and travel rather than “arborescent” points of contention and stasis:³¹

The basic conflict here—of granting to an object both immanence and non-transcendence—disappears if the concept of materiality is understood as a process of interpretation rather than a positing of the characteristics of an object. The object, as such, exists only in relation to the activity of interpretation and is therefore granted its characteristic forms only as part of that activity, not assumed a priori or asserted as a truth.³²

The typographically rendered page is an image, and it is also language; the reader is also a voyeur, viewer, or “screener.” Representation is at once *in* and *of*. These simultaneities operate within the production of both visual pattern and semantics; both are integral to signification, and both inform Drucker’s “materiality of interpretation.” It is a potent model for a digital visual poetics, whose object is never merely “text” even in the most generous poststructuralist sense—and especially when, as in Eduardo Kac’s virtual reality poems, the “text” is a representation of three-dimensional typographical objects in the “quadri-dimensional” hermeneutic space of an electronic visual simulation.

b. Hybrid Bodies: Politics, Poetics, and the Posthuman

Another model of hermeneutic materiality appears in the writings of Donna J. Haraway and N. Katherine Hayles. Haraway’s socialist-feminist “cyborg” is a political-aesthetic persona comprised of constantly shifting, “partial, contradictory, permanently unclosed constructions of personal and collective selves,” a hybrid of mind and body, animal and human, organism and machine, public and private, nature and culture, man and woman.³³ Haraway writes against a tradition of Marxian humanism that offers, in her view, only boundary-maintaining divisions (base/superstructure, public/private, material/ideal) and secular Edens of natural innocence; her own call for a postdeconstruction theater of “partial, real connection,” or material practice, reveals a commitment to continual inquiry via desire divorced from any final or totalizing resolution: “Some differences are playful; some are poles of world historical systems of domination. ‘Epistemology’ is about knowing the difference.”³⁴ A contemporary socialist feminism, Haraway suggests, will

31. Gilles Deleuze and Félix Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia* (London: Athlone Press, 1988), pp. 6ff, p. 21.

32. Drucker, *Visible Word*, p. 43.

33. Haraway, *Simians, Cyborgs* (above, n. 12), p. 157.

34. *Ibid.*, pp. 160–161.

utilize the resources of “high-tech facilitated social relations”³⁵ toward the elimination of fixture in racial, sexual, and class identities, without losing sight of the ways in which the same technologies embody patriarchal-capitalist “informatics of domination”³⁶ and repression.

As an aesthetic and political persona, the cyborg resists the repressive structures inbuilt in electronic technologies of military-industrial origin, and at the same time refuses “an anti-science metaphysics, a demonology of technology.”³⁷ The body, and “embodiment,” exist politically not as an original “state of nature” divorced from and threatened by technology, but in partial fusion with it: “Intense pleasure in skill, machine skill, ceases to be a sin, but an aspect of embodiment. The machine is not an *it* to be animated, worshipped, and dominated. The machine is us, our processes, an aspect of our embodiment.”³⁸ In aesthetic-political terms, such an engagement will reject Marxian-humanist and avant-gardist notions of “revolution” for something closer to Gertrude Stein’s sense of a “continuous present.”³⁹ An “organic” or “holistic” politics exhibits excessive dependence on the “reproductive metaphors” of Edenic innocence or pre-Babel unity. Regeneration, not reproduction, Haraway suggests, is the cyborg moment—and it is enacted through the technology of writing:

Writing is pre-eminently the technology of cyborgs, etched surfaces of the late twentieth century. Cyborg politics is the struggle for language and the struggle against perfect communication, against the one code that translates all meaning perfectly. . . . That is why cyborg politics insist on noise and advocate pollution, rejoicing in the illegitimate fusions of animal and machine.⁴⁰

Politics and poetics are united: “This is a dream not of a common language, but of a powerful infidel heteroglossia.”⁴¹

35. *Ibid.*, p. 165.

36. *Ibid.*, p. 181.

37. *Ibid.*

38. *Ibid.*, p. 180.

39. See Gertrude Stein, “Composition as Explanation,” in *The Selected Writings of Gertrude Stein* (New York: Random House, 1962), pp. 514–518: “No one is ahead of his time, it is only that the particular variety of creating his time is the one that his contemporaries who also are creating their own time refuse to accept. . . . Continuous present is one thing and beginning again and again is another thing. These are both things. And then there is using everything.”

40. Haraway, *Simians, Cyborgs* (above, n. 12), p. 176.

41. *Ibid.*, p. 181.

The postmodern ideology of dematerialization that drives Baudrillard's nihilism depends, for Haraway, on the origin story of a presimulacrum, or intact, nonsimulated, real reality (presumably antedating the rise of media).⁴² For Hayles, it is an ideology with its own highly determined material and "embodied" historical context in the so-called information revolution—though its most dangerous tendency, as ideology, is to obscure just that material context. "How much of what we call postmodernism," Hayles asks, "is a response to the separation of text from context that information technology makes possible?"⁴³ The *fluidity* of text (information), accelerated by global network technologies, makes the control of material context for information ("spin") the potential nexus for both technocratic repression and its resistance:

Whether in biotechnology, disinformation campaigns or hightech weapons, the ability to separate text from context and to determine how the new context will be reconstituted is literally the power of life and death. In this context, what Niklas Luhmann calls "context control" is crucial to understanding how relations between power and knowledge are constituted in postmodern society.⁴⁴

"Informatics"—the "technological, economic, and social structures that make the information age possible"—comprise material conditions for the production of decontextualized and dematerialized information.⁴⁵ The scientific-humanistic discourse of informatics, engaging the humanistic discourses of postmodern theory, is necessarily hybridized: "Excavating these connections requires a way of talking about the body that is responsive to its postmodern construction as discourse/information and yet is not trapped within it."⁴⁶

Hayles's "embodied" body is, like Haraway's cyborg, an aesthetic-political persona—not a body as such, or an identity, or an essentialized Self, but a position "enmeshed within the specifics of place, time, physiology, and culture, which together compose enact-

42. For an analysis of postmodernism as "disappointed rationalism" (which has inspired the digital media theory of Bolter and Grusin, among others), see Bruno Latour, *We Have Never Been Modern*, trans. Catherine Porter (Cambridge, Mass.: Harvard University Press, 1993). Cyborgs and other hybrids are, in Latour's account, "nonmodern" or "amodern" (but *not* antimodern) in their refusal to perpetuate the linear and binary structures that define ideologies for both the modern *and* the postmodern.

43. Hayles, "Text Out of Context" (above, n. 12), p. 27.

44. *Ibid.*, p. 30.

45. Hayles, *How We Became Posthuman* (above, n. 12), p. 29.

46. *Ibid.*, p. 193.

ment."⁴⁷ Insofar as "bodily practices have a physical reality which can never be fully assimilated into discourse,"⁴⁸ information, or technology, the body entering the immersive or absorptive VR environment of dematerialized simulacra does not thereby automatically undergo identical dematerialization. What *does* occur, Hayles argues, is the constitution of a new subjectivity in and through this technologically provided experience: a subjectivity capable to hold the simulated and nonsimulated together in a hybrid or cyborg simultaneity. It is not that the body disappears into the simulation, nor that the simulation invades the organic domain of the body. They simply coexist. Uneasily, perhaps—but the unease itself, and an aesthetic-political willingness to tolerate such unease, even to *cultivate* it, is a potent form of resistance to the global "technocratic context" of a deterministic information society. Embodiment—the resistant subject position, the body's organic intervention in the machine—is "generated from the noise of difference."⁴⁹

Self-organization from noise, a concept central to information theory, is at the heart of Haraway's "regeneration" and of Félix Guattari's formulation of "machinic heterogenesis."⁵⁰ In place of hierarchical and patriarchal reproductive legitimation, the socialist-feminist cyborg or hybrid—what Hayles terms the "posthuman"⁵¹—substitutes regenerative illegitimacy as a strategy for resisting the militarism and capitalism of technology, *through* technology:

The drive for control that was a founding impulse for cybernetics . . . is evident in the simulations of virtual reality, where human senses are projected

47. *Ibid.*, p. 196. This conception of agency or subjectivity is remarkably congruent with that developed in the poetics of the so-called L=A=N=G=U=A=G=E writers, many of whom advanced cogent theoretical justifications for a poetic practice that radically altered, or entirely discarded, the Romantic lyric subject, while retaining other options for aesthetic-political agency. See, e.g., the essays and manifests collected in Andrews and Bernstein, *L=A=N=G=U=A=G=E Book* (above, n. 7); particularly Ron Silliman's "Disappearance of the Word, Appearance of the World"; Bernstein, *Poetics* (above, n. 7); Ron Silliman et al., "Aesthetic Tendency and the Politics of Poetry: A Manifesto," *Social Text* 19/20 (1988): 261–275.

48. Hayles, *How We Became Posthuman* (above, n. 12), p. 195.

49. *Ibid.*, p. 196. For another picture of this resistance (via a reading of J. G. Ballard's *Crash*), see Scott Durham, "The Technology of Death and Its Limits: The Problem of the Simulation Model," in Conley, *Rethinking Technologies* (above, n. 12), pp. 156–170.

50. Félix Guattari, "Machinic Heterogenesis," in Conley, *Rethinking Technologies*, pp. 13–27. For an extended discussion of "self-organization from noise" and its relation to literature and aesthetics, see William R. Paulson, *The Noise of Culture: Literary Texts in a World of Information* (Ithaca, N.Y.: Cornell University Press, 1988).

51. See Hayles, *How We Became Posthuman* (above, n. 12), pp. 2–3.

into a computer domain whose underlying binary/logical structure defines the parameters within which action evolves. At the same time, by denaturalizing assumptions about physicality and embodiment, cybernetic technologies also contribute to liberatory projects that seek to bring traditional dichotomies and hierarchies into question.⁵²

A machine politics is also a machine poetics. "Hacking" is one of its prime forms: to write is also to write illegitimate code, to "write over" the instrumental (technocratic) functions of a user interface, disrupting the controlled delivery of information. A resistant subjectivity of temporal, spatial, physiological, and cultural specificity is thereby reinserted into the context-erasing simulation, assuming the status of a "para-site."⁵³

c. Hybrid Practices: The "Aesthetics of Information"

In his own gestures toward a digital poetics, Matthew G. Kirschenbaum has advanced the notion of a "radical aestheticization of information" as a strategy of broadly humanistic response to new research in computer science. He suggests that the instrumentally designed operations of computer technologies may yield results of unintended (and unattended) aesthetic interest—one of his examples is Antonio Gonzalez-Walker's "Language Visualization and Multilayer Text Analysis" project, at the Cornell Theory Center—and argues unapologetically for attention to "beauty" in the "visual materiality of information."⁵⁴ As hybrid practice, Kirschenbaum's advocacy combines attention to the "phenomenological materiality of electronic media"—a materiality constituted, like Drucker's, not ontologically but in the event of human interaction with the machine—with the injunction, derived from the theories of Russian formalism, to "defamiliarize" the objects of attention—in this case, information.⁵⁵ New electronic artworks, he suggests,

are concerned with demonstrating the materiality of their environments. . . . this concern extends itself into the supposedly immaterial electronic writing spaces which some of these objects inhabit. . . . although created and authored

52. Hayles, "Seductions of Cyberspace" (above, n. 12), p. 174.

53. See Johannes Birringer, "Makrolab: A Heterotopia," *PAJ: A Journal of Performance and Art* 60 (September 1998): 66–75.

54. Matthew G. Kirschenbaum, "Truth, Beauty, and the User Interface: Notes on the Aesthetics of Information," paper presented at the conference "Mixed Messages: Image, Text, Technology," University of North Carolina, Charlotte, October 13, 1997; available on the Web at <http://www.engl.virginia.edu/~mgk3k/papers/beauty/index.html>.

55. Here, again, a congruence with L=A=N=G=U=A=G=E and related poetics may be noted.

by human beings, [they] are at all points engaged in the construction of artificial subject positions—artificial intelligences if you will, though perhaps artifices of intelligence is more accurate and less (or more) glib.⁵⁶

Contemporary graphic design and electronic typography, Kirschenbaum suggests, are establishing the aesthetic paradigms to which poets and artists of the moment will respond—just as futurist and Dadaist poet-artists are seen, in Drucker's account, responding to the technologically determined print aesthetics of the early twentieth century. Kirschenbaum's "artificial subject position" or "artifice of intelligence" is, like the hybrid, cyborg and posthuman, an aesthetic-political formation useful to a digital visual poetics. From the European historical avant-garde to Anglophone L=A=N=G=U=A=G=E writers of the 1970s and 1980s, twentieth-century poetic and visual innovators have shared the project of "materializing" language and the technological media that modify it. Now, as the new writing technology of the computer nears ubiquity in the developed West, the task of an electronic poetics will be to operate on, to alter, the computer's instrumental teleology—its design for informational transparency and functionality—as other poetics have resisted the transparencies of discourse and media in their times. Hybridization (of theory as of practice, of bodies as of machines), hacking, para-sitism, and other nontotalizing, nontechnocratic forms of resistant engagement will inform a poetics of the new visual/textual media and the new opportunities for communication and critique (as distinguished from command and control), *through forms of writing*, that they make possible. In the simultaneously material and ephemeral fields of such practice, the notion of "avant-garde" may seem finally provincial, absorbed into the sensibilities of an art that positions itself at once here and (whether virtually or no) elsewhere.

2. Eduardo Kac's "Secret"

"What happens as we go?" asks Michael Joyce.⁵⁷ What happens as we "screen"—bring up on screen, examine, evaluate—"Secret," an interactive virtual reality poem created in 1996 by artist and poet Eduardo Kac, which he claims is the "first of its kind"?⁵⁸ The poem ref-

56. Matthew G. Kirschenbaum, "Machine Visions: Towards a Poetics of Artificial Intelligence," *electronic book review* 6 (November 1997): <http://www.altx.com/ebr/ebr6/6kirschenbaum/6kirsch.htm>, section I.

57. Joyce, *Of Two Minds* (above, n. 2), pp. 199–218.

58. See KacWeb, the artist's personal Web site/gallery (<http://www.ekac.org>), which, in addition to "Secret," archives other work and selected theoretical writings.

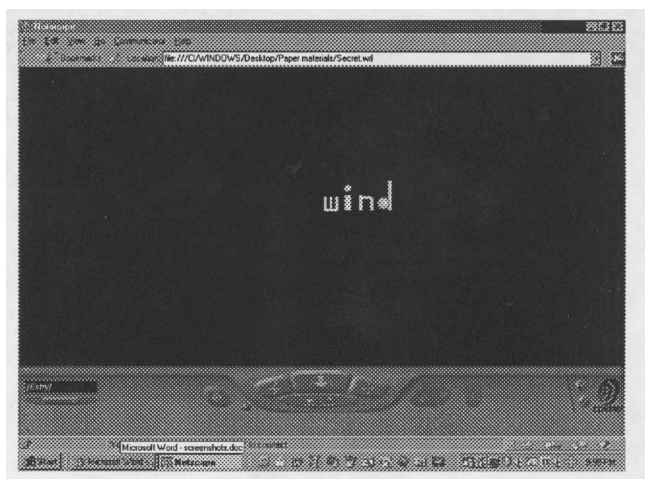


Figure 1. Eduardo Kac, “Secret.” Entry position. Source: Kac Web (<http://www.ekac.org>). All screen captures are reproduced with permission of the artist.

erences a small body of electronic visual and “kinetic” poetry based on network standards developed since 1993 (HTML, VRML, JavaScript, etc.),⁵⁹ some of which can be found at virtual gallery and exhibition Web sites such as Kenneth Goldsmith’s UbuWeb (<http://www.ubu.com>) and SUNY-Buffalo’s Electronic Poetry Center Gallery (<http://wings.buffalo.edu/epc/gallery/>).⁶⁰ At the same time,

59. HTML: Hyper Text Markup Language; VRML: Virtual Reality Modeling Language. Javascript is one of a number of “script” languages (Dynamic HTML is another) designed to facilitate graphic animation and interactive functions.

60. The work collected on these sites, by Tan Lin, Juliet Ann Martin, Janet Zweig, Charles Bernstein, Brian Kim Stefans, Loss Pequeño Glazier, and others, brings to the network-architectures first explored by hypertext prose writers the polymorphous influence of typographic and hypergraphic experimentation—from futurism, Dada, and surrealism through the international Concrete movement of the 1950s and countless other schools and subschools of “visual poetry,” in both electronic and traditional media, up to the present day. For an excellent introduction to Concrete poetry, see Mary Ellen Solt, “A World Look at Concrete Poetry,” in *Concrete Poetry: A World View*, ed. idem (Bloomington: Indiana University Press, 1970), pp. 7–66. Other sources worth consulting are Richard Kostelanetz, ed., *Visual Literature Criticism: A New Collection* (Carbondale/Edwardsville: Southern Illinois University Press, 1979); Theo D’haen, ed., *Verbal/Visual Crossings 1880–1980* (Amsterdam: Rodolpi, 1990). For discussions of digital visual poetry, see David K. Jackson, Eric Vos, and Johanna Drucker, eds., *Experimental—Visual—Concrete: Avant-Garde Poetry Since the 1960s* (Amsterdam: Rodolpi, 1996); *Visible Language* 30.2, issue entitled “New Media Poetry: Poetic Innovation and New Technologies” (1996).

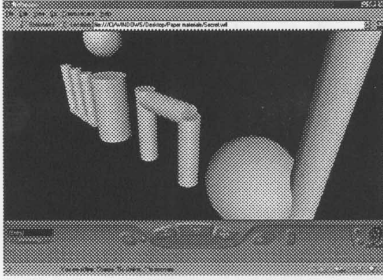


Figure 2. Approaching the word/object.

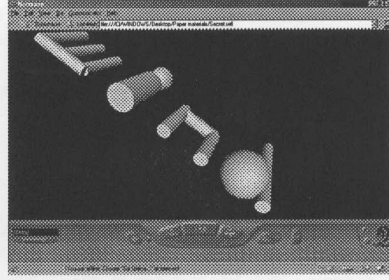


Figure 3. Rotation of the word/object.

“Secret” adapts the mimetically biased technology of VR to represent the material typographic sign, the symbolic letter, the word, and other units of writing as three-dimensional objects in space, and in this it enters the company of work such as Jeffrey Shaw’s “The Legible City,” the Virtual Shakespeare Project at MIT’s Media Lab, and Kirschenbaum’s electronic dissertation.⁶¹

So: what happens as we go? The file loads (Fig. 1); the viewer rests at the center of an “alpha-architectural space”⁶²—“whitespace” turned “blackhole”⁶³—in which the word “wind” floats some distance ahead and slightly to the right. The word’s four letters are constructed from cylinder and sphere shapes of heterogeneous size, visual density, texture, and apparent level of light reflection. A representation of a control panel (not part of the poem, but a configuration of the Web browser used to view it) presents us with a number of options. We may approach the word/object “wind” on a “gravity” (grounded) or a “floating” plane; we may zoom in on the word/object from our represented position in space; we may “slide” vertically or horizontally through the space, or “tilt” from one represented position; we may “pan” from one position; we may “manually” rotate the word/object (Figs. 2, 3).

61. Michael Joyce discusses “The Legible City” at some length in *Of Two Minds* (above, n. 2), pp. 199–218. For a discussion of the Virtual Shakespeare Project, see D. Small, “Navigating Large Bodies of Text,” *IBM Systems Journal* 35:3–4 (1996): <http://www.almaden.ibm.com/journal/sj/mit/sectiond/small.html>; Kirschenbaum, “Truth, Beauty” (above, n. 54). Kirschenbaum provides information about his dissertation, as well as a smaller project composed in VRML, at <http://www.engl.virginia.edu/~mgk3k/>.

62. Joyce, *Of Two Minds*, p. 203.

63. Katie Salen and Sharyn O’Mara, “Dis[appearances]: Representational Strategies and Operational Needs in Codexspace and Screenspace,” *Visible Language* 31:3 (1997): 278.

Exploration of the space reveals an ideogrammatic word constellation, “readable” from top to bottom and from right to left:

wind
that
blows

[string of quasi-alphabetic letters/symbols]
with
t [or cross/crucifix shape]

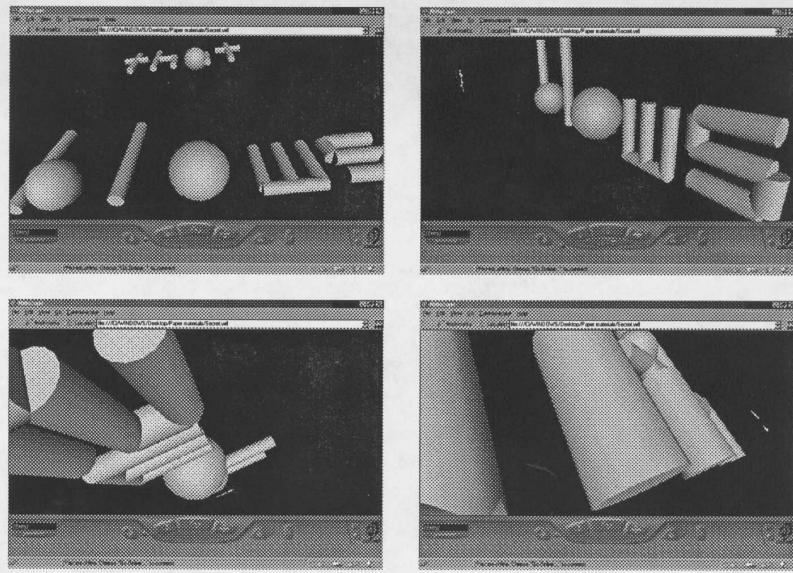
[isolated cylinder and sphere shapes]

The constellation is visible in toto only at a distance and an angle that render each word/object and subconstellation nearly illegible; as one reverses, slides up or down, and pans from the entry point, each word/object and subconstellation appears, achieves legibility, and recedes toward illegibility as the next approaches.

This is only “entry” reading. It is up to the viewer to travel toward and away from and around, under, and over each word/object and subconstellation, and toward and away from and around, under, and over the entire visual-textual constellation. “Reading” here is a poly-modal activity, which may include:

1. “Reading” the words in the conventional sense.
2. Examining the words as representations of three-dimensional objects—an operation that may involve rotating them, traveling “above,” “below,” “behind,” “past,” or even “through” them (Figs. 4–7)—literally, “subversion.”
3. Reflecting on the nature of this simulated interaction with the simulated materiality of the words (reading one’s reading).
4. Reflecting on the simulation interface itself—reading the virtual-reality software itself as a work of writing or code.

Kac’s practice is prolific and diverse, having included graffiti poetry, book art, and body-poetry (using his body in performance to shape letters); electronic signboard and videotext poetry; holograph and hypertext poetry; digitally animated and interactive cinematic visual poetry; installation art; telepresence, telematic, and biological art; digital painting; and, most recently, robotic art. In his theoretical writings, he has developed a wide-ranging and radically engaged



Figures 4–7. Word/object “subversion.”

machine poetics, one part of which (chiefly from the essays on “holopoetry”) I can present only briefly and superficially here.⁶⁴

“I felt on the one hand,” Kac writes in “Key Concepts of Holopoetry,”

that the printed page imprisoned the word within its two-dimensional surface, thus creating specific limits to poetic expression. On the other hand, I realized that the construction of solid three-dimensional objects gave the word a permanence and a physical presence that contradicted the dynamics of language.⁶⁵

The goal of a holograph or (in a slightly different way) a VR poem is *simulated* linguistic materiality—the real materiality of real objects being inherently too static or inert for Kac’s purpose. Furthermore: it

64. See, e.g., Eduardo Kac, “Holopoetry,” *Visible Language* 30:2 (1996): 184–213; idem, “Key Concepts of Holopoetry,” in Jackson, Vos, and Drucker, *Experimental—Visual—Concrete* (above, n. 60), pp. 247–257; idem, “Beyond the Spatial Paradigm: Time and Cinematic Form in Holographic Art,” “Holopoetry, Hypertext, Hyperpoetry,” and “Recent Experiments in Holopoetry and Computer Holopoetry,” all available from <http://www.ekac.org>.

65. Kac, “Key Concepts,” p. 247.

is not the simulation of a linguistic materiality that might be construed in real three-dimensional space (say, by carving letters out of blocks of wood), but rather that which is displaced onto the viewer, or interactor, in the confrontation with the radical *immateriality* of word/image in the holographic or electronic medium. Holographic poems are “quadri-dimensional because they integrate dynamically the three dimensions of space with the added dimension of time. This is not the subjective time of the reader found in traditional texts, but a perceived time expressed in the holopoem itself.”⁶⁶ As the space of the poem dematerializes into an “oscillatory field of diffracting light,” its temporality becomes a dynamic function of “viewer-activated choreography”⁶⁷—a viewer’s interaction with, and alteration of, the poem. Central to this effect is Kac’s theory of the “fluid sign,”

essentially a verbal sign that changes its overall visual configuration in time, therefore escaping the constancy of meaning a printed sign would have. . . . Fluid signs are time-reversible, which means that the transformations can flow from pole to pole as the beholder wishes, and they can also become smaller compositional units in much larger texts, where each fluid sign will be connected to other fluid signs through discontinuous syntaxes. Fluid signs create a new kind of verbal unit, in which a sign is not either one thing or another thing. A fluid sign is perceptually relative. For two or more viewers reading together from distinct perspectives it can be different things at one time; for a non-stationary reader it can reverse itself and change uninterruptedly between as many poles as featured in the text. . . . Fluid signs can also operate metamorphoses between a word and an abstract shape, or between a word and a scene or object. When this happens, both poles reciprocally alter each others’ meanings.⁶⁸

In “Secret,” this occurs at the level of the subconstellation that “reads”:

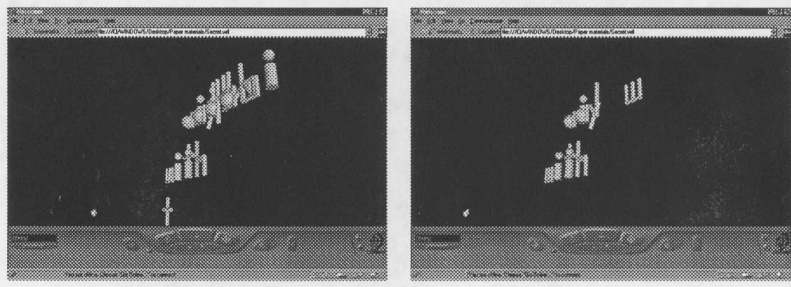
[string of quasi-alphabetic letters/symbols]
with
t [or cross/crucifix shape]

The ideogram/sentence “wind that blows . . .” has, upon the viewer’s arrival at a position near this subconstellation, disintegrated into

66. Kac, “Holopoetry,” p. 187.

67. *Ibid.*, pp. 193, 190. For an extended discussion of time in “information art,” see Perloff, “Morphology” (above, n. 5).

68. Kac, “Holopoetry” (above, n. 64), p. 194.



Figures 8 and 9. Permutation of “fluid signs.”

strings of quasi-typographic objects that approach and withdraw from alphabetic signification, and that change their individual and collective configurations according to the viewer’s position in space (Figs. 8, 9). “After” that—temporality being, not the determined “subjective time” of print literature, but a broadly variable function of the viewer’s intervention—it simply disintegrates into isolated, ambiguously lexical and iconic particles (the crucifix that is also a *t*, the cylinder and sphere that are also an *l* and an *o*).

Far from “disintegration,” though, the operation of this very small poem, as I read it, is to write the polymorphic convergence of the lexical-visual in electronic writing, the paradox of material representation in an immaterial medium, and the invitation to a participatory poetics that travels well beyond the naïve claims for reader empowerment that are advanced, and as quickly dismissed, by the techno-aesthetic utopians and their opponents. Michael Joyce puts it well: “this is theater as much as virtuality. . . . as theater, virtuality and interactivity enact nothing less than reading embodied.”⁶⁹ It is not mere user participation in an electronic work of art, some valorously “active” clicking at a mouse, that is being sought here; what is sought, rather, is a reflection of the vital ambiguities of life lived through technologies that change us, and our ways of living and thinking, even as we change them in responding to perceived evolutions in our knowledge: a feedback loop linking contemporary cultural forces and instrumental technologies into reciprocal and recombinant relations.⁷⁰

The title of Kac’s poem indulges the transcendent-revelatory metaphysics of passive reading even as it interrogates and challenges

69. Joyce, *Of Two Minds* (above, n. 2), p. 204.

70. Hayles, *How We Became Posthuman* (above, n. 12), p. 14.

that reading. As Charles Bernstein has put it, apropos of Gertrude Stein: "Faced with the sound, the materiality, or the presence (present) of language as music of sense in our ears, we project a secret: a hidden language."⁷¹ Here, though, the secret is not simply *illusion* or *simulacrum*, to be collapsed into the truth of the real, but a figure for the hybrid unattainability—or simultaneity—of "pure" presence/absence, materiality/immateriality, reality/virtuality, and so on. The "secret" is to hold two contradictions in suspension, withholding their resolution in an endless play of difference *within the body*. "Secret" is not, I venture, "avant-garde"—however far it may appear to reach forth into a manifestly alien, self-organized aesthetics. Its effect as a poem, as a piece of art, depends on "polluted" reading: reading against metaphysics as against positivism; against apocalypse as against utopia; against revolution as against tradition.

3. "Hacking a Private Site": Some Concluding Thoughts

"Our encounter with the future text," Michael Joyce suggests, "carries with it what might be called the melancholy of history."⁷² Already, the theory and practice of electronic poetics are almost unmanageably diverse. Cyberpoetry, hyperpoetry, infopoetry, virtual poetry, digital videopoetry, computer *Lettrisme*, experimental electronic typography, and intersign poetry flourish in thriving movements and submovements (some constituted solely by their inventors). OuLiPo has been succeeded by InfoLiPo.⁷³ What Alberto Moreiras calls "hacking a private site"⁷⁴ stands not for the effort to consolidate these proliferating poetics, or to find one's safe place among them, but for the politics they collectively enact in breaking codes that limit the *uses* of a technology to its *functions*. In this spirit, I would like to close with a speculation on the role that digital media may play in the continual revising of tradition that is a poetics.

In our time, "information" is displacing traditional capital, including the unpatentable intellectual and aesthetic capital by which artists, writers, and humanities scholars earn their livelihood.⁷⁵ As an alternative to "end of culture" scenarios, new formulations of a post-millennialist "experimental humanism"⁷⁶ are being offered by schol-

71. Bernstein, *Poetics* (above, n. 7), p. 146.

72. Joyce, *Of Two Minds* (above, n. 2), p. 234.

73. See the InfoLiPo Web site at <http://www.unige.ch/infolipo/>.

74. Alberto Moreiras, "The Leap and the Lapse: Hacking a Private Site in Cyberspace," in Conley, *Rethinking Technologies* (above, n. 12), pp. 191–203.

75. Hayles, "Text Out of Context" (above, n. 12), p. 28.

76. Lanham, *Electronic Word* (above, n. 28), p. 11.

ars and writers who are pressured to defend the legitimacy of their own cultural activity as well as to resist the automation of literacy that is “deskilling” them as teachers (along with their students). Such an experimental humanism, Richard Lanham suggests, will “think systemically”⁷⁷—both in the specifically technocratic sense of the term, and in a wider sense that sees the “information revolution” and its technologies as part of the cultural-historical context of the late twentieth century. In other words, it will be resolutely “interdisciplinary,” and technologically hybridized without being technologically cannibalized.

The discourse of information theory may be the most potent new appropriation for a digital poetics. Now that an academic critical literature has established the importance of poetic strategies once (often still) derided as productive of “unpoetical” nonsense, randomness, and opacity, the informational concepts of noise, pattern, and recombination may (through no intention of their originators) provide new ways to read and to write about the poetics of the past, as well as informing those of the continuous or unacknowledged present. Perhaps some of our most challenging poetics have courted randomness, courted nonsense, in protocybernetic anticipation, or perhaps they remain challenging merely because new languages seem glad to engage them. The task in any case is, as Moreiras suggests, to “define a task of thinking that would refuse to believe itself above and beyond technique.”⁷⁸ As “the humanities” are increasingly charged with the task of responding to the informatic Engineering World View, the leisure of a theory divorced from experimental practice may prove to be more unsustainable than ever.

77. *Ibid.*, p. 26.

78. Moreiras, “Leap” (above, n. 74), p. 194.