Desiring Agency: Limiting Metaphors and Enabling Constraints in Dawkins and Deleuze/Guattari

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Recent work in the cultural studies of science has shown the importance of metaphoric networks for scientific inquiry. Sometimes these networks have functioned to lead scientists in the wrong direction. For example, metaphoric equations developed in nineteenth-century physiology mapped Africans, women, and animals onto one another to the detriment of all three categories, as Nancy Leys Stepan has shown. But more often, metaphors have opened up fruitful lines of inquiry, as when Norbert Weiner saw metaphoric correspondences between prosthetic devices and cybernetic machines ("Sound Communication"). It is not easy to determine where the limits of metaphor should be drawn. In some sense almost all language can be considered metaphoric, as Michael Arbib and Mary Hesse argue in discussing metaphoric resonance in measurement. Indeed, even mathematics can be considered metaphorical, as Norbert Weiner pointed out when he observed that mathematics was "the most colossal metaphor imaginable" (*Human Use*, 95). So can sense perception, as Walter Freeman and Gregory Bateson among others have argued, for perceptual experiences are metaphors for reality rather than representations of reality. In *Philosophy in the Flesh: The Embodied Mind and Its Challenge to Western Thought*, George Lakoff and Mark Johnson give this idea a linguistic turn when they argue that metaphor connects abstract thought with embodied experience, providing a grounding we often fail to see precisely because it is so pervasive and fundamental. These diverse explorations make clear that metaphor is not opposed to scientific work but intrinsic to it. Metaphor performs essential functions in orienting and guiding thought; it connects abstraction and embodiment; it allows us to discover regularities between what we perceive and what exists outside of ourselves; and it entwines cultural presuppositions with scientific frameworks. These complex functions can be summed up by saying that metaphor works to connect and contextualize, broadening the space of abstract thought by embedding it in physical, sensory, linguistic and cultural contexts.

But metaphor alone is not enough to make sense of scientific practices. There must also be ways to distinguish between metaphors that mislead and metaphors that enable. To account for this, I have elsewhere argued for what I call "constrained constructivism." The basic idea is that reality is never present to us as such; rather, our sense perceptions are self-organizing processes that construct the world we know from the unmediated flux, unknowable in itself. We can never know if these models are identical with reality, because we cannot occupy a position from which we could encounter reality independent of our perceptions. Rather, the best we can do is determine if our models are *consistent with* the unmediated flux as we experience it, a proposition that indexes our observations to the range over which we observe phenomena, the nature of our sensory and perceptual apparatus, the languages available to us, and so forth. In determining this consistency or lack of it, constraints play a special role. Inexpressible in themselves, they cannot speak the truth; they cannot say "Yes, this is how reality is." But they can work to allow us to see that certain models are not consistent with the unmediated flux; they can say "No, this is not how reality is."

Complexity theory has developed the idea of constraints in a somewhat different direction by focusing on the positive role they play in the development of biological organisms. Stuart Kauffman has argued that selection alone is not enough to account for the emergence of life on the earth. Rather, constraints operating in what Stephen Jay Gould has called the "morphospace" create interlocking feedback loops that greatly speed the processes of self-organization and therefore the emergence of life. As Kauffman puts it, these processes give "order for free." Rather than operating upon random variations, selection works upon self-organizing processes that already have locked into place enough synergistic interactions so they are likely to proceed to higher levels of complexity. This evolutionary account is similar to the role of constraints in producing viable scientific models; in both, constraints operate constructively by restricting the space of possibilities. In one case, constraints operate to delimit the physical contexts in which organisms evolve; in the other, they delimit the conceptual space in which scientific models are forged and tested.

Thus metaphor and constraint are both productive but in opposite directions. Metaphor enables by enlarging the domain of possibilities, linking one kind of phenomenon to another in fruitful comparison. Constraint enables by restricting the space of possibilities so that only the most viable self-organizing systems or models will emerge. Metaphor and constraint can be interpreted physically (sense perception as metaphor, fitness landscape

as constraint) and linguistically (metaphor as linguistic network, constraint as linguistic negation). However interpreted, metaphor and constraint engage in a push-pull dynamic that makes both together more effective than either would be alone. Metaphors embed by creating articulations that are necessarily specific in nature, although they always include more than they explicitly say; constraints delimit by confining the space of possibility, although they always potentially include more possibilities than any given path of actualization realizes.

These general remarks provide a context for exploring how metaphor and constraint work to reconfigure agency in this posthuman era. For many people, the posthuman has an alarming sound, raising suspicions that the next phenomenon to be declared obsolete is the human species itself. Indeed, some researchers have taken this stance. Hans Moravec, for example, invites us to look forward to a "postbiological" future in which humans have been succeeded by robots; those humans who survive will do so by downloading their consciousness to a computer. Yet these apocalyptic visions need not determine the scope and significance of the posthuman. As I argue in *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature, and Informatics*, the posthuman can offer opportunities to reconceptualize the human in ways that take better account of embodiment, situated action, and interconnections with other intelligent entities.

In making this argument, I connect the posthuman with the dismantling of the liberal humanist subject and trace its development from post-World War II to the present. Among the characteristics associated with the posthuman are a privileging of informational pattern over material instantiation; a construction of consciousness that sees it as an epiphenomenon rather than the seat of identity; a view of the body as an originary prosthesis that we all learn to operate at birth and that is supplemented later in life by other prostheses; and above all, a configuration of the human so that it can be seamlessly articulated with intelligent machines. The posthuman can be understood as an extension of postmodernism into subjectivity, carrying the projects of fragmentation and deconstruction into the intimate territory of nerve and bone, mind and body. Just as postmodernism has many contributory currents, from information technologies to postcolonialism, so the posthuman is taking place at a variety of sites for diverse reasons, not all of which are compatible with one another.

My focus is this essay will be somewhat different than in *How We Became Posthuman*. Whereas there I emphasized connecting embodiment with information, here I will be concerned with the role of metaphor and constraint

in re-envisioning agency within posthuman contexts. If the posthuman implies distributed cognition, then it must imply distributed agency as well, for multiplying the sites at which cognizing can take place also multiplies the entities who can count as agents. I will take as my tutor texts Richard Dawkins's *The Selfish Gene* and Deleuze and Guattari's *A Thousand Plateaus*. Enacting the posthuman primarily through speech acts, these two texts mirror each other. One is a work of popular science that occasionally looks as if it is trying to do philosophy, the other a work of philosophy that occasionally looks as if it is trying to do popular science. Both propose radical reconfigurations of agency, Dawkins through the selfish gene and Deleuze and Guattari through "desiring machines" that engage in a ceaseless play of deterritorialization and reterritorialization. What can their mobilizations of metaphor tell us about the cultural significance of the posthuman, and what does their use or neglect of constraints imply about the viability of their respective projects? What is at stake in redefining agency, and how do these redefinitions of agency fit together with distributed cognition? Perhaps most significantly, what do these projects imply about our ability to exercise agency? Should we count as conscious human subjects capable of meaningful action, or are we rather assemblages of selfish genes and mutating desiring machines?

Distributing Agency

The Selfish Gene tells the story of how genes manipulate the "lumbering robots" who serve them as transmission vehicles—that is, humans. Dawkins, a skillful rhetorician keenly aware of the value of a good story, nevertheless espouses what might be called the giftwrap model of language. This model sees language as a wrapper that one puts around an idea to present it to someone else. I wrap an idea in language, hand it to you, you unwrap it and take out the idea. The places where the narrator presents language as a giftwrap are not randomly dispersed; rather, they come precisely at the strategic points where crucial transitions are made. For example, at the critical juncture where the narrator is switching the unit of selection from the individual to the gene, we find this assertion. "At times, gene language gets a bit tedious, and for brevity and vividness we shall lapse into metaphor. But we shall always keep a skeptical eye on our metaphors, to make sure they can be translated back into gene language if necessary" (45). When he wishes to explain altruism, a sticky but essential point for his argument, we read the following: "If we allow ourselves the license of talking about genes

as if they had conscious aims, always reassuring ourselves that we could translate our sloppy language back into respectable terms if we wanted to, we can ask the question, what is a single selfish gene trying to do?" (88).

Dawkins's "sloppy language" is of course much more than attractive giftwrap. On the contrary, it is central to the construction of a narrative in which the gene is cast as protagonist. Dawkins's contribution, which he himself calls a shift in perspective so dramatic as to amount to a new paradigm, is to identify the gene as an actor distinct from the individual, who is re-conceptualized as a remote-control mechanism operated by the gene. If the selfish gene were only a metaphor that could be discarded at will, the motive force driving the narrative would collapse. Without this narrative, there are only shifts in populations that can be statistically measured but not causally explained. The entire argument, then, depends on the narrative in which the selfish gene, far from being a mere rhetorical flourish, is the constitutive actor.

The Selfish Gene balances between what Greg Myers calls a narrative of nature and a narrative of science. In a narrative of nature, typical of popular science writing, nature itself is presented as an actor, as if the narrator could view nature directly without measuring apparatus. Dawkins's presentation of the gene performs in this way, for he often writes as if we could see the gene directly, without bothering about microscopes, proteins, other cellular components, etc. Yet at other times *The Selfish Gene* emphasizes mediation, thus functioning like a narrative of science. The mediating agents who present nature to the readers are not researchers, however, as they are in most scientific journal articles. Rather, they are the analogies that constitute the genes as actors. In a conventional narrative of science, the voices of the researchers are partially suppressed through passive construction and impersonal pronouns. In Dawkins's text, by contrast, the presence of the analogies is highlighted—but only to claim that they are merely window-dressing for the "real" narrative of science that lies behind them. Thus the analogies are figured as linguistic actors whose peculiar function it is to deny they are actors and point beyond themselves to the "respectable" language that could, if it existed, constitute the researchers as actors in their place. This "real" narrative of science does not of course exist in Dawkins's text, except insofar as it is called into a kind of virtual existence by the language that claims it is merely a wrapper for what lies within. By constituting a distinction between wrapper and content, the giftwrap creates a virtual content that stands, the narrator claims, always ready to displace the analogies-as-actors. The story takes shape as a narrative told through

actors who erase their own agency even as they speak. The content thematically echoes this rhetorical strategy, for this is a story about displaced agency, about a subjectivity who has the illusion of control while the real control lies with the gene who inhabits the subject and uses him for its own ends. Displacement of agency occurs on multiple levels, within humans and within the language of the text itself. In both cases the putatively "real" agents—the selfish gene and the "real" language of science—are virtual entities existing only insofar as the text performs them. This dislocation of agency and marginalizing of consciousness as the controlling component are typical characteristics of the posthuman.

The genes function as displacements for the liberal humanist subject not only by having agency, but also through their principal personality trait, selfishness—or in game-theoretic terms, rational self-interest. In locating the genes within scenarios of competition, Dawkins reinscribes the received views of his field. As Evelyn Fox Keller has shown in "Language and Ideology in Evolutionary Theory," the language of competition pervades the discourse of evolutionary biology. Keller notes how tenaciously the language of competition lingers, so much so that it continues to be used as a putatively technical term, even when the proposed definitions are strikingly at odds with its colloquial use. Asking what the stakes are in retaining the term, Keller notes that competition has traditionally been linked with scarcity. Embedded within the coupling of scarcity and competition, she argues, lies a series of nested assumptions that inscript into biology the discourses of the liberal subject, in which competition for scarce resources is played off the Lockean premise that a man, first and foremost, has the right to own himself. From this limited resource, a man through his labor creates other resources in a competitive environment that rewards investment and punishes dissipation. Keller points out instances in which the scenario of competition is not appropriate, for instance in interactions that generate resources. In the discourse of evolutionary biology, those have traditionally been organized into the "special case" categories of cooperative, mutualist, and symbiotic interactions. The most important of these mutualist interactions is sexual reproduction, which as Keller observes, cannot by definition be a special case for sexually reproducing species. Fully taking sexual reproduction into account would challenge the widespread assumption that "intrinsic properties of individual units are primary to any description of evolutionary phenomena" (93-4). The language of competition, Keller concludes, is inextricably bound up with the language of reproductive autonomy. To invoke one is to reinforce the other. In an important sense, the

selfish gene is also an asexual gene, for Dawkins largely ignores the effects that sexual reproduction would have on his scenarios of competition and selfishness.

In addition to marginalizing non-competitive interactions, Dawkins's focus on the gene as the relevant actor radically decontextualizes genetic processes, abstracting the gene out of its embeddedness in the cell and indeed out of the organism as a whole. This decontextualization has the effect of reducing the relevant constraints, so that selective pressures are treated as if they operate on a single gene alone, not on interrelated groups of genes, genes located in cells, or cells operating within organisms. *The Selfish Gene* is underwritten by two imperatives: preserving the autonomous agency characteristic of the liberal subject, and re-locating it in the non-conscious modular units of the genes. These moves carry a double valence of anxiety and reassurance. Even though one's own agency is co-opted, agency itself is preserved. The key to the narrative is autonomy. To qualify as a "real" actor in the drama, an agent has to be able to preserve its own identity and defend itself against encroaching foreign elements. The winners are those actors who can subvert and co-opt another's agency while keep their own intact. In this sense Dawkins's gene is the ultimate individual, the triumphant product of that brand of Anglo-American ideology that ignores the complexities of social and economic contexts and declares success or failure to be solely the result of individual initiative.

In *Unweaving the Rainbow*, Dawkins modifies his vision of the selfish gene by acknowledging that the gene can sometimes best achieve its selfish ends by cooperating with others. This emphasis on cooperation was influenced by his experiences with artificial life simulations, which he documents in *The Blind Watchmaker* and more recently in his article, "The Evolution of Evolvability." Working with a genetic algorithm program to generate biomorphic shapes for artificial creatures, he feels a strong exultation: "I was genuinely astonished and delighted at the richness of the morphological types that emerged before my eyes as I bred" ("Evolution," 208). Wait a minute—bred? From the author of *The Selfish Gene*, whose narrator consistently elided the contingencies of sexual reproduction? The verb choice indicates that a quite different pattern of imagery is emerging, along with new kinds of narrative embeddings.

The pattern becomes clear when the narrator explains there are two kinds of changes in genetic programs: those that change phenotypes, and those that change the programs themselves. Of the latter, the most significant and rare are the "watershed events," so-called because they "open the

floodgates to further evolution" (219). The narrator consistently associated watershed events with images of fertility, especially pregnancy. Segmentation, for example, "represented a change in embryology that was pregnant with evolutionary potential" (218). There is in natural selection, the narrator speculates, "A kind of ratchet such that changes in embryology that happen to be relatively fertile, evolutionarily speaking, tend to be still with us" (218). Selection thus works not only for survivability but also for evolvability; "an embryology that is pregnant with evolutionary potential is a good candidate for a higher-level property of just the kind we must have before we allow ourselves to speak of species or higher-level selection" (219).

As if to prove Keller's point that sexual reproduction, if really considered, would force a redefinition of selection operating across an interlinked range of groupings, the narrator chooses to cast his concession that higher-level selection might be valid in the gendered language of sexual reproduction. The narrative that emerges from his gendered language envisions a male programmer mating with a female computer program to create progeny whose biomorphic diversity surpasses the father's imagination. These biomorphs inherit their mother's remarkable fertility, at once instantiating and transmitting a pregnant embryology that promises to bridge the gap between natural and artificial life, a move foretold in the interspecies mating of human and computer program that comprises the central narrative of Dawkins's essay.

In this narrative the plot breaks out of anxiety about displaced agency to celebrate the fertility of a non-human reproductive partner. Autonomy gives way to interdependence, preservation of the individual agent to cooperative procreation, anxiety about keeping boundaries intact to a feminine-encoded program whose enfolded structure, rather than closing in on itself, opens outward toward complexity and prolific progeny. That this mating occurs between a human and an intelligent machine is another indication that this text is performing the posthuman. The distributed agency originally located in the selfish gene is here located in the productive union of human and computer. In contemporary fictions and in contemporary scientific research programs such as evolutionary psychology and artificial life, similar versions of the posthuman appear repeatedly: consciousness is fractured and demoted as the seat of identity, but humans can reclaim a modified agency by fertile unions with intelligent machines.

Yet this scenario works (if it works) only because it involves large doses of abstraction and decontextualization. In a devastating critique of *The Blind*

Watchmaker, Kenneth T. Gallagher points out that the morphological shapes Dawkins "breeds" are not constrained by the functional requirements always operative for living organisms. If a flying insect has a certain body mass, for example, it must also have a wingspan and muscle structure such that it will be able to fly. Moreover, these muscle structures must have adequate oxygen supply, and so forth. The complex requirements generated by the interplay between interdependent systems place severe limitations on which evolutionary pathways will be viable. No such constraints operate when the only issue is two-dimensional shapes on the screen that have no internal organs and so no functional constraints on their evolution. Gallagher examines Dawkins's metaphors to show how they operate to evade the necessity of constraints. Explaining the progression from the initial point that the program draws to its creation of complex forms, Dawkins comments that the "ancestor is a tiny creature, a single dot. Although the ancestor's body is a dot, like a bacterium in the primeval slime, hidden inside it is the potential for branching" (*Blind Watchmaker*, p. 58). Gallagher points out that Dawkins's language attributes agency where there is none:

> But of course this dot had nothing hidden inside it, for the simple reason that it had no inside. It is a pure result, no more an agent or a 'body' than the image that is projected on a motion picture screen. The instructions for its branching were not hidden inside it, but in the mind of the programmer, or at most in the program he wrote. (507)

In the absence of systemic constraints, the evolutionary path for Dawkins's biomorphs is determined not by self-organizing processes synergistically locking together but by his own aesthetic choices as he picks which artificial life specimens to "breed" for the next generation, as well as the computer algorithm that dictates that all the forms will be symmetrical along a central axis.

Like the selfish gene, the biomorph proves to be a stalking horse for the reinscription of the liberal humanist subject. Who *really* has agency in these performances is not so much the entity in itself (gene or biomorph) as the human narrator who constructs them as agents through metaphors operating without the productive push-pull effect of balancing constraints. The willful erasure of constraints functions to recuperate agency for the human speaker. It is not the actors within the story who exercise final agency, but the human narrator who crafts the story so as to solidify his own agency even as he supposedly gives it away.

Fracturing Agency

In *A Thousand Plateaus: Capitalism and Schizophrenia*, Deleuze and Guattari develop a crucial phase of their project in the Third Plateau, where they engage with biology to trace evolution from non-living geological strata to organic strata to living organisms. In this plateau they adopt the term "strata" for organisms, a strategy that enables them to mobilize their terminology so they can dismiss as unimportant the enveloping physiological membrane that all living creatures have evolved and upon which they depend to distinguish themselves from their environment. Selectively drawing upon the history of biology to support this highly problematic move, Deleuze and Guattari develop a new vocabulary in which movement occurs without regard for the integrity of the skin—deterritorialization and reterritorialization, lines of flight, planes of consistency, assemblages. The plane of consistency functions as the enveloping milieu around the mutating assemblages, a kind of biotic soup into which the assemblages can constantly dissolve and reform.

At first glance this move seems to have much in common with recent trends within cognitive science and evolutionary biology that stress interactions between organism and environment. In Andy Clark's "extended mind" model, for example, organisms develop adaptive behaviors by incorporating the environment into their extended cognitive systems. In a different way, Edwin Hutchins discusses such artifactual environments as the navigation room on a ship as a cognitive system that includes both human and non-human actors. Pressures affect the system as a whole, causing it to self-organize in ways that no single actor may fully grasp, much less control. Each actor reacts to specific local conditions, much like a stadium full of people who are holding up their individual cards without necessarily seeing the pattern as a whole. In yet another way, Lynn Margulis has undercut the secure boundaries of an organism by showing that primeval oxygen-using bacteria invaded the cell and stayed on as mitochondria, thus blurring clear distinctions between inside and outside. As Mark Hansen points out in his brilliant analysis of Deleuze and Guattari's biophilosophy, all these models emphasize the role of specific constraints and local interactions to structure the fit between organism and environment so that adaptive behaviors occur.

In this they are quite different from Deleuze and Guattari's desiring machines, for these machines are envisioned as mutating without any meaningful constraints (other than references to "connectivities," which are so vague it is difficult to see how they could function as constraints). In their rhetoric, the environment loses the constraining specificity that makes it

contribute to self-organization, becoming instead a plane of consistency that, although it may temporarily manifest various "strata," is always undercutting them through flows of intensity that have as their motive force machinic desire. A similar lack of constraint characterizes the mutating assemblages that take the place of human subjectivity. "A body without organs is not an empty body stripped of organs, but a body upon which that which serves as organs . . . is distributed according to crowd phenomena, in Brownian motion, in the form of molecular multiplicities" (30). And how is this flow structured? By the amorphous workings of desire that can match anything to anything else. "One of the essential characteristics of the dream of multiplicity is that each element ceaselessly varies and alters its distance in relation to the others" (30). Although they later acknowledge that "You never reach the Body without Organs, you can't reach it, you are forever attaining it, it is a limit" (150), their rhetoric specializes in urgent imperatives that construct the Body without Organs (BwO) as an intensely privileged state toward which we should all aspire.

In its lack of internal structure and its ability to ceaselessly metamorphose, the BwO strongly resembles the evolving forms that Dawkins bred on his computer. The same criticism Gallagher leveled against Dawkins's computer biomorphs holds for the BwO. Its plasticity and mutating potential are unlimited because it needs to perform no *functional* work in the world, either in terms of its internal structure or its ability to survive in a dynamic environment. Hansen cogently analyzes the use Deleuze and Guattari makes of Geoffroy Saint-Hilaire's topological conception of "Nature as Fold," an astonishing vision in which Geoffroy imagined species coming into existence as "folds" in an underlying topological field. Hansen characterizes this underlying topology as a "fluid plane of immanence . . . that reconceptualizes specification as an epiphenomenona of movement and timing" (para. 47). He points to this passage from Deleuze and Guattari to show how evolutionary constraints are jettisoned in favor of an unconstrained dynamism.

> There is a pure plane of immanence, univocality, composition, upon which everything is given, upon which unformed elements and materials dance that are distinguished from one another only by their speed and that enter into this or that individuated assemblage depending on their connections, their relations of movement. A fixed plane of life upon which everything stirs, slows down or accelerates. (*Thousand Plateaus*, 255)

In this vision of living beings as movement, all internal functioning is evacuated and all couplings with the environment that lock in certain behaviors are ignored.

In exploring the underlying reasons for these maneuvers, Hansen traces Deleuze's engagement with Bergson's creative evolution and his transformation of it into "involution." Hansen concludes that the drive in *A Thousand Plateaus* to do away with the organism (as well as subjectivity and signification) comes not from a serious engagement with contemporary evolutionary biology and cognitive science but rather from a "prior philosophical commitment" dedicated to doing away with all constraints whatever. He concludes that "So long as D+G refuse to recognize the constraint built into self-organization in the biological domain, their conception of differentiation remains formal and empty (at least in terms of that domain) and the notion of emergence it supports simply cannot do justice to the dynamic nature of biological processes" (para. 49).

This conclusion exposes the gap that separates Deleuze and Guattari from the extended mind models with which they seem to have affinities. Constraints are not lessened by the interactions that make organism and environment into a self-organizing system; rather, it is the specific nature of the constraints that drive the configurations. One of Andy Clark's examples will serve to illustrate the point. Marine biologists have discovered that the bluefin tuna can swim significantly faster than the rate predicted by physiological considerations such a hydrodynamic efficiency and muscle strength. They account for this difference by noticing that the fish, before it leaps forward, swims around in tight circles, creating a circular hydraulic flow. By following this flow, the fish benefits from a slingshot effect as it shoots off on a tangent, gaining velocity from the way it has configured its local environment. The environment has physical properties that determine the fish's behavior, and the fish's behavior changes the environment in ways beneficial to its survival. By insisting that flows of intensities follow only the dictates of desire, Deleuze and Guattari erase the powerful role of constraints in creating complex feedback loops that make organism and environment into an integrated system.

Within their text, desire manifests itself through a powerful rhetoric that accomplishes through description what cannot be accomplished through physical processes. The engine of desire that breaks up subjectivity, organism and signification is not the desire of mutating machines but rather that of the authors who perform themselves and others as assemblages through metaphoric language. This naturally leads to a contradiction, for only a highly organized network of metaphors will have force enough to break open our belief that organisms exist, that subjects possess agency, and that language signifies. The authors entertain this contradiction when they argue that a book (presumably their book as well)

> is an assemblage. . . and as such is unattributable. It is a multiplicity . . . As an assemblage, a book has only itself, in connection with other assemblages and in relation to other bodies without organs. We will never ask what a book means, as signified or signifier; we will not look for anything to understand in it. We will ask what it functions with, in connections with what other things it does or does not transmit intensities, into what other multiplicities its own are inserted and metamorphosed, and with what bodies without organs it makes its own converge. . . when one writes, the only question is which other machine the literary machine can be plugged into, must be plugged into in order to work. . . literature is an assemblage. It has nothing to do with ideology. There is no ideology and never has been. (4)

This striking vision of the book as an assemblage is created by mobilizing the resources of metaphoric language in masterful ways that draw upon imagery, sentence rhythm, parallel verb structures, and a host of other rhetorical devices to create within the reader a sense of imperative so strong it seems to summon into existence what the passage describes. But the highly structured nature of these rhetorical forms in another sense contradicts the idea of the literary machine as assemblage. If desire is at work in this passage, it manifests itself not as a free-flowing intensity capable of endless mutation but rather as a focused rhetorical language that paradoxically seeks to dissolve the very forms that empower it.

Deleuze and Guattari share with Dawkins, then, a certain effacement of the linguistic actors they rely on to perform what the text describes. This similarity notwithstanding, there remains an important difference in their strategies. Whereas Dawkins crafts metaphors indispensable to his argument and treats them as if they were dispensable, Deleuze and Guattari use metaphors indispensable to their argument and treat them as if they were literally true. Dawkins posits a "real" scientific language that exists only insofar as the text performs it, whereas Deleuze and Guattari describe biological assemblages that exist only insofar as the text performs them. Both texts rely on performative language to actualize concepts that could not exist without these performances, but they do so by operating from different premises about the relation of language to reality. Despite his extensive use of metaphorical language, Dawkins never doubts that there exists a reality outside language that language describes but does not create. By contrast, Deleuze and Guattari show every evidence of believing that language has the power to create reality (or at least a perception of reality) that will not be constrained by biological requirements and that can be brought into existence through redescription alone.

I am now in a position to say more precisely what I hoped to gain by staging this encounter between Dawkins and Deleuze and Guattari. The

comparison between their performative languages suggests that each position has something of the truth about it, but not the whole truth. Whereas Dawkins underestimates the role of language in creating our perceptions of reality, Deleuze and Guattari overestimate the power of language to create reality in the face of empirical evidence to the contrary. Both language practices ignore constraints, thus sacrificing the productive potential of constraints to specify interactions and say "no" to constructions inconsistent with the unmediated flux as we experience it.

These language practices have important implications for how agency is enacted in and by language. As we have seen, Dawkins does not so much deny agency as displace it into the selfish gene, thereby preserving the selfish individual as the locus of meaningful action. Moreover, his language also performs his own agency as creator of the "selfish gene" idea. This kind of agency is inherently contradictory, since it can be successful only by erasing itself as agent. The contradiction becomes explicit in Dawkins's idea that bits of language, which he calls "memes," can operate like selfish genes and propagate themselves through their human hosts. If the idea of the meme is itself a meme, as Richard House suggests in his astute analysis of the field of "memetics," this means that Dawkins creates an idea that he claims has an agency of its own, and the success of his individual creation is ensured by erasing his role as creator. The contradiction is beautifully illustrated by Brett Cooke's anecdote about being at a conference where a participant referred to "Dawkins's meme." Dawkins rose to object to the possessive. He explained that the word "meme" was being considered for inclusion in the *Oxford English Dictionary*, but it would be included only if the editors judged it as a word in general circulation and not attached to any one person. Having his idea gain currency, then, required that he divorce it from his own agency in creating it.

In contrast to Dawkins, Deleuze and Guattari are much more thoroughgoing in their deconstruction of the liberal humanist subject and of "subjectification" in general. As Mark Hansen comments, "D+G do not shift the locus of agency . . . [but] dissolve the role of agency altogether" (para. 61). Surely this is correct in terms of their general intention. Yet like Dawkins, they too recuperate agency at crucial points. For example, in Plateau 6 entitled "How Do You Make Yourself a Body without Organs," they warn the reader against giving up agency altogether. "You have to keep enough of the organism for it to reform each dawn; and you have to keep small supplies of signifiance [sic] and subjectification, if only to turn them against their own systems when the circumstances demand" (160). In this passage

and many others, they write as though the reader can deterritorialize and reterritorialize herself at will, as though the desire that is the motive force directing movement along planes of consistency can be made to do the bidding of conscious resolve. Through their performative language, they necessarily exercise agency even as they also deny it. Whereas Dawkins has to deny his own agency in order to have the "selfish gene" meme propagate through the culture, Deleuze and Guattari cannot avoid inscripting into language the agency implicit in their performance of desire.

Juxtaposed, these two versions of the posthuman indicate that a principal area of contestation is the struggle to envision what will come after the fracturing of consciousness. Is the goal to develop new forms of consciousness, either through displacement into other entities or through emergent behaviors achieved in and through artificial life forms? Or is the goal to experience an unimaginably vast range of behaviors that are literally unthinkable as long as consciousness reigns as the arbiter of identity? In different ways, both of these alternatives decontextualize our relations to each other and to the non-human world. Both deny that distributed cognition implies distributed agency—Dawkins by giving all the agency to the genes and none to conscious human subjects, Deleuze and Guattari by giving agency to the desire that alone drives the endless mutations and transformations.

I prefer a third alternative, in which constraints act in dynamic conjunction with metaphoric language to articulate the rich possibilities of distributed cognitive systems that include human and nonhuman actors. Neither completely constrained nor entirely free, we act within these systems with partial agency amid local specificities that help to determine our behavior, even as our behavior also helps to configure the system. We are never only conscious subjects, for distributed cognition take place throughout the body as well as without; we are never only texts, for we exist as embodied entities in physical contexts too complex to be reduced to semiotic codes; and we never act with complete agency, just as we are never completely without agency. In a word, we are the kind of posthuman I would want this word to mean.

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