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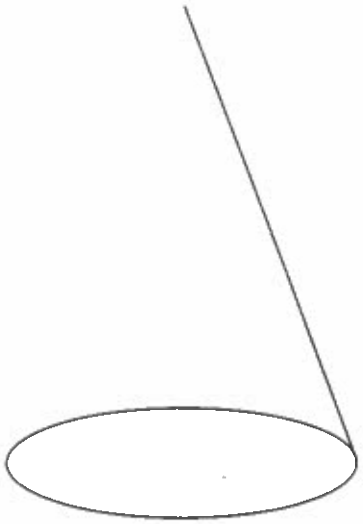

The Force of the Virtual

Deleuze, Science, and Philosophy

Peter Gaffney, Editor

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Preface

THE IDEA TO MAKE A BOOK OF THIS KIND began at the annual meeting of the American Comparative Literature Association in 2006 at a panel discussion organized by Catherine Liu, "Individuals, Groups, Multiplicities: Humans and Others." The question was raised whether something on the order of definitions is disturbed, if somebody somewhere ought to take offense, whenever people in the social sciences—often with the best intentions—talk about science as if it were a purely creative enterprise. It is evident that *something* is disturbed, that *someone* is offended. Simply to ask this question calls attention to a certain divide, not only between one discipline and another, one methodology and another, one truth-system and another. More critically, it points to a set of privileges, perhaps even an ethics, that is necessarily invoked in the production of scientific knowledge but is not typically invoked with the notion of creativity (creativity has its own "ethics"). How have we, scientists and nonscientists alike, arrived at such a distinction? With what aim have we molded our language around the creation of phenomena, on the one hand, and the observation or description of phenomena on the other? To follow this line of inquiry and yet maintain the legitimacy of science *as a creative enterprise* is the challenge we face when we try to understand the philosophy—and "scienticity"—of a thinker like Gilles Deleuze.

The need to engage this dimension of Deleuze's work becomes evident when we consider a trend in the social sciences that Bruno Latour calls "antifetishism."[1] The critical gesture, he claims, has two moments. In the first moment, it reveals that process by which we (naïve believers) transform an object into a screen for our own wishes; the material entity "does nothing at all by itself." In the second moment, the critical gesture shows how these same wishes are the direct effect of our genes, interests, drives, etc.—in other words, that we are acted on by some other "causal"

· CHAPTER 8 ·

Elemental Complexity and Relational Vitality: The Relevance of Nomadic Thought for Contemporary Science

Rosi Braidotti

The "Knowing" Subject as Multiplicity, Process, and Becoming

The theoretical core of nomadic thought consists in the rejection of the unitary vision of the subject as a self-regulating rationalist entity and of the traditional image of thought and of the scientific practices that rest upon it. These are traditionally expected to implement a number of Laws that discipline the practice of scientific research and police the borders of what counts as respectable, acceptable, and fundable science. In so doing, the Laws of scientific practice regulate what a mind is allowed to do, and thus they control the structures of our thinking. Foucault's *Archaeology of Knowledge* (1966) is a foundational text and a crucial point of origin for a critique of this intrinsically normative image of thought at work within the allegedly "objective" practice of science.

The "knowing" subject of European philosophical humanism has historically claimed to be structured along the royal axes of self-reflexive individualism and self-evident scientific rationality. They are indexed on a linear notion of time and a teleological vision of the purpose of scientific thought. The deeply entrenched anti-humanism of poststructuralist thought becomes radicalized in Deleuze and Guattari's conceptual redefinition of the practice of thinking and hence also of scientific reason. Nomadic subjectivity moves beyond the mere critique of both the identitarian category of a sovereign self and dominant subject position on the one hand and the image of thought that equates subjectivity with rational consciousness on the other. The linear, Enlightenment-based vision of human progress as the effect of a deployment of scientific reason

upon the theater of the world historical experience of humans is accordingly abandoned. An alternative vision is proposed of both the thinking subject, of his or her evolution, and of the structure of thinking.

I will develop this insight in two parallel directions: the first is a sociopolitical critique of the identity politics of the allegedly universal subject of knowledge. The second is a more conceptual critique of the rationalist takes of subjectivity but also of what it means to think at all.

As for the former, social criticism of science: following the insights of feminist (Lloyd, Irigaray, Harding, Haraway), postcolonial (Spivak), and race theorists (Gilroy), I take the universalistic claim of scientific practice to task and expose the cluster of vested interests and particularities that actually sustain its claims. A binary logic of self-other opposition is at work in this falsely universalistic model, which results in reducing "difference" to pejoration, disqualification, and exclusion.[1] Subjectivity is postulated on the basis of sameness, i.e., as coinciding with the dominant image of thought and representation of the subject as a rational essence. Deleuze and Guattari offer the perfect synthesis of this dominant image of the subject as masculine/white/heterosexual/speaking a standard language/property-owning/urbanized. This paradigm equates the subject with rationality, consciousness, moral and cognitive universalism. This vision of the "knowing subject"—or the "Man" of humanism—constructs itself as much by what it includes within the circle of his entitlements as in what it excludes. Otherness is excluded by definition, which makes the others into structural and constitutive elements of the subject, albeit by negation. Throughout Western philosophy, Otherness has been constructed with distressing regularity along intertwined axes of sexualization, racialization, and naturalization.[2] The others—women or sexual minorities; natives, indigenous and non-Europeans, and earth or animal others—have been marginalized, excluded, exploited, and disposed of accordingly. The epistemic and world-historical violence engendered by the claim to universalism and by the oppositional view of consciousness lies at the heart of the conceptual Euro-centrism that Deleuze and Guattari are attacking.

In so far as rhizomatic subjectivity and nomadic thought challenge the methodological Euro-centrism of philosophy, they also critique the complicity between this discipline of thought and nationalism. After Deleuze and Guattari, it becomes not only feasible but even imperative to question the habit of thought that reiterates the Euro-centric character

of philosophy. The question of what is European about Continental philosophy, for instance, can and should be raised as a way of suspending the assimilation of philosophy into a hegemonic vision of European consciousness.[3] In this respect I concur with Foucault's assessment that Deleuze brings to completion the denazification of European philosophy and lays to rest the belligerent vision of the philosopher's tasks as guardian of the *status quo*.

As a vintage Deleuzian, I am very keen to stress this aspect of Deleuze and Guattari's work and to add a note of concern at the relative neglect suffered by the methodological implications of nomadic thought for contemporary science and for philosophy. Especially in the last few years, there has been increasing compartmentalization and abstraction in the reception of Deleuze's thought. Thus, scholarship about the "political" Deleuze is often distinct from that on the "cultural" or the "epistemological" aspects of Deleuze and Guattari's complex *corpus*. This is a problematic tendency, which often projects a spurious veneer of scientism over a thinker whose rigor is—or should be—beyond dispute. Contrary to the ongoing recompartmentalization of Deleuze's thought, I would want to stress the practical implications of his philosophy for today's world as well as its methodological innovations. Deleuze's critique of capitalist power relations, for instance, is an integral part of his reconceptualization of the specific domain and responsibility of science. I would want to argue, in other words, for a multilayered unity of thought within the Deleuzian rhizomatic universe and to call accordingly for a more multifaceted reception of his work, by his admirers and his critics alike. The point of Deleuze and Guattari's work is to empower us to think differently about the analytic and historical preconditions for new forms of materialist and complex subjectivity. This transformative ethics provides the inner cohesion of their work.

The second direction in which I deploy Deleuze's insights is conceptual. Deleuze and Guattari's defense of the parallelism between philosophy, science, and the arts is not to be mistaken for a flattening out of the differences between these different genres of intellectual pursuit. There is no easy isomorphism, but rather an ontological unity among the three branches of knowledge. Deleuze and Guattari take care to stress the differences between the distinctive styles of intelligence that these practices embody, but these qualitative differentiations are possible only because they are indexed on a common plane of intensive self-transforming Life energy.

This continuum sustains the ontology of becoming that is the conceptual motor of nomadic thought. In so far as science has to come to terms with the real physical processes of an actualized and defined world, it is less open to the processes of becoming or differentiation that characterize Deleuze's monistic ontology. Philosophy is a subtler tool for the probing intellect, one that is more attuned to the virtual plane of immanence, to the generative force of a generative universe, or "chaosmosis," which is nonhuman and in constant flux.

Deleuze calls the radical alterity of a mind-independent reality "Chaos" and defines it positively as the virtual formation of all possible forms. The generative force of "Chaos" is the source of its vital elemental powers of renewal and transformation—through endless processes of actualization of determinate forms.

The key elements of this conceptual operation are: firstly, Deleuze and Guattari stress the notion of a deep vitalist interrelation between ourselves and the world, in an ecophilosophical move that binds us to the living organism that is the cosmos as a whole. By extension, for philosophers, this leads to a redefinition of the activity of thinking away from the rationalist paradigm to a more intensive and empathic mode. Thinking is the conceptual counterpart of the ability to enter modes of relation, to affect and be affected, sustaining qualitative shifts and creative tensions accordingly.

Secondly, there is the shift away from an epistemological theory of representation to ontology of becoming. By way of comparison, Lacan—and Derrida with him—defines Chaos epistemologically as that which precedes form, structure, and language. Confined to the unrepresentable, this post-Hegelian vision reduces "Chaos" to that which is incomprehensible. For Deleuze, however, following Spinoza, Bergson, and Leibniz, Chaos en-/unfolds the virtual copresence of any forms. This produces a number of significant shifts: from negative dialectics to affirmative affects; from entropic to generative notions of desire; from a focus on the constitutive outsides to a geometry of affects that require mutual actualization and synchronization; from an oppositional and split to an open-ended, relational vision of the subject; from the epistemological to the ontological turn in philosophy.

As a consequence, one can venture the conclusion that the main implication for the practice of science is that the scientific Laws need to be retuned according to a view of the subject of knowledge as a complex

singularity, an affective assemblage, and a relational vitalist entity. This could also be described as a metamethodological shift.

The Decentering of Anthropo-Centrism

One of the great innovations of Deleuze's philosophy is the rigorous brand of methodological pacifism that animates it. The monistic ontology that he adapts from Spinoza, to which he adds the Bergsonian time-continuum, situates the researcher—be it the philosopher, the scientist, or the artist—in a situation of great intimacy with the world. There is no violent rupture or separation between the subject and the object of her inquiry, no predatory gaze of the cold clinician intent upon unveiling the secrets of nature.[4] An elemental ontological unity structures the debate. This nonessentialist vitalist position calls for more complexity and diversity in defining the processes of scientific inquiry.

As a result of the conceptual shifts introduced by Deleuze and Guattari, the burden of responsibility is placed on us to develop new tools of analysis for the subtler degrees of differentiation and variations of intensity that characterize the formation of the subject. The nomadic vision of the subject as a time continuum and a collective assemblage implies a double commitment, on the one hand to processes of change and on the other to a strong sense of community—of our being in *this* together. Our copresence, that is to say the simultaneity of our being in the world together, sets the tune for the ethics of our interaction. Our ethical relation requires us to synchronize the perception and anticipation of our shared, common condition. A collectively distributed consciousness emerges from this—i.e., a transversal form of nonsynthetic understanding of the relational bond that connects us. This places the concepts of relation and affect at the center of both the ethics and the epistemic structures and strategies of the subject.

The decentering of anthropocentrism is one of the effects of the scientific advances of today—from biogenetics to evolutionary theories. This means that the naturalized, animals, or "earth-others"—in fact, the planet as a whole—have ceased to be the boundary-markers of the metaphysical uniqueness of the human subject. They have consequently stopped acting as one of the privileged terms that indexes the European subject's relationship to otherness. Otherness or pejorative difference has a long and established history in scientific practice. As I suggested

earlier, scientific inquiry and exploration has been historically an outward-looking enterprise, framed by the dominant human masculine habit of taking for granted free access to and the consumption of the bodies of others. As a mode of relation negative difference is Oedipalized, in that it is both hierarchical, and hence structurally violent, and saturated with projections, identifications, and fantasies. These are centered on the dyad: fear and desire, which is the trademark of the Western subject's relation to his "others." They are also the expression of his sense of entitlement to knowledge—that systematic "curiosity" that, from Odysseus on, has been the emblem of applied intelligence in our culture. Desire and fear are the motor of the quest for knowledge about, and control over, the others.

Take evolutionary theory as an example: fear and desire for the animal outside is echoed by fear for the animal within. The wild and passionate animal in us may be cheered as the trace of a primordial evolutionary trajectory or cherished as a repository of unconscious drives, but it also calls for containment and control for exactly the same reasons. The technologies to discipline these wild passions through specific practices, as Foucault teaches, are coextensive with the making of high scientific discourses and institutions. The technologies of control are both gendered and racialized to a very high degree, and historically they have harped with distressing regularity on the disposable bodies of "others."

Deleuze's work rests on the by-now proven hypothesis that this mode of Oedipal relation to one's object of inquiry is currently being restructured. As a result of the advances of our own scientific knowledge, a bioegalitarian turn is taking place that encourages us to engage in an animal relationship with animals—the ways hunters do and philosophers can only dream of.[1] The challenge today is how to transform, deterritorialize, or nomadize the human-nonhuman interaction in philosophical practice, so as to bypass the metaphysics of substance and its corollary, the dialectics of otherness, secularizing accordingly the concept of human nature and the life that animates it. With Deleuze and Guattari, I would speak of a generic becoming-minoritarian/animal as a figuration for the humanoid hybrids we are in the process of becoming. It is clear that our science can deal with this post-anthropocentric shift, but can philosophy rise to the occasion?

The answer lies in the ethical underpinnings of the nomadic vision of philosophical thinking. The displacement of anthropocentrism and the recognition of trans-species solidarity are based on the awareness of "our" being in *this* together; that is to say: environmentally based, embodied, and

embedded and in symbiosis with each other. Biocentered egalitarianism is a philosophy of radical immanence and affirmative becoming, which activates a nomadic subject into sustainable processes of transformation. Becoming-animal/nonhuman consequently is a process of redefinition of one's sense of attachment and connection to a shared world, a territorial space. It expresses multiple ecologies of belonging, while it enacts the transformation of one's sensorial and perceptual coordinates, in order to acknowledge the collective nature and outward-bound direction of what we call the self. The subject is fully immersed in and immanent to a network of nonhuman (animal, vegetable, viral) relations. My code word for this relentless elemental vitality of Life itself is *zoe*. The *zoe*-centered embodied subject is shot through with relational linkages of the symbiotic, contaminating/viral kind that interconnect it to a variety of others, starting from the environmental or eco-others. This nonessentialist brand of vitalism reduces the hubris of rational consciousness, which far from being an act of vertical transcendence, is rather recast as a downward push, a grounding exercise. It is an act of unfolding of the self onto the world and the enfolding within of the world.

Methodological Implications

Transpositions

The postanthropocentric shift entails a number of important theoretical and methodological implications for the practice of science. Deleuze's nomadic vision of the subject does not necessarily preclude the position in which the subject is placed by scientific methods of inquiry, but displaces it in a number of structural and productive ways. The more obvious innovations are methodological: nomadic thought requires less linearity and more rhizomatic and dynamic thinking processes. A commitment to process ontology and to tracking the qualitative variations in the actualization of forces, forms, and relations forces some creativity on the usually sedate and conformist community of academic philosophers and institutional scientists.

The basis for this practical method is that of affirmative differences, or creative repetitions, i.e.: retelling, reconfiguring, and revisiting the concept, phenomenon, event, or location from different angles. This is the application of the key concept of Spinoza's perspectivism, but it also infuses it with a nomadic tendency that establishes multiple connections

and lines of interaction. Central to this is the notion of repetition as the internal return of difference, not of sameness. It is creative mimesis, not static repetition. Revisiting the same idea or project or location from different angles is therefore not merely a quantitative multiplication of options, but rather a qualitative leap of perspective. This leap takes the form of a hybrid mixture of codes, genres, or modes of apprehension of the idea, event, or phenomenon in question.

This shift calls for an intensive form of interdisciplinarity, transversality, and boundary-crossings among a range of discourses. Deleuze's wide-ranging reading habits offer a perfect example of this approach; references to modernist literature and music coexist peacefully alongside comments on contemporary mathematics and physics. This transdisciplinary approach enacts a rhizomatic embrace of diversity in scholarship that can only be sustained by a double talent: enormous erudition and a rigorous structure of thought. No wonder most academics flee from the challenge of Deleuze's texts, arguing that they are either too complex or too "unfocused" for their liking. Nomadic texts are not written for those who confuse thinking with the mere exercise of sedentary protocols of institutional reason. Deleuze brings transdisciplinarity to bear in the actual methods of thought, thus making diversity into a core issue.

I have also defined this methodological approach as "transpositions." This is a situated method of tracking the qualitative shifts or ontological leaps from generative chaos or indeterminate forms to actualized or determinate forms, while avoiding the pitfalls of subjectivism and individualism. Theoretically, a transposition has a double genealogical source: from music and genetics. In both cases it indicates an intertextual, cross-boundary or transversal transfer of codes, in the sense of a leap from one code, field, or axis into another. These leaps are not to be understood merely in the quantitative mode of plural multiplications, but rather in the qualitative sense of complex multiplicities. In other words, it is not just a matter of weaving together different strands, variations on a theme (textual or musical), but rather of playing the positivity of difference as an ontological force and of setting up adequate frames of resonance for their specific rhythms of becoming. As a term in music, transposition indicates variations and shifts of scale in a discontinuous but harmonious pattern. It is thus created as an in-between space of zigzagging and of crossing: nonlinear and chaotic, but in the productive sense of unfolding virtual spaces. Nomadic, yet accountable and committed; creative and hence

affective, relational and cognitively driven; discursive and also materially embedded—it is coherent without falling into the logocentric inflexibility of instrumental rationality.

In genetics "transposition" refers to processes of mutation, or the transferral of genetic information, that occur in a nonlinear manner, which is nonetheless neither random nor arbitrary.[6] This is set in opposition to the mainstream scientific vision that tends to define the gene as a steady entity that transmits fixed units of heredity in an autonomous and self-sufficient manner and genetic variation as random events. Transposable moves appear to proceed by leaps and bounds and are ruled by chance, but they are not deprived of their logic or coherence. Central to genetic transpositions is the notion of material embodiment and the decisive role played by the organism in framing and affecting the rate and the frequency of the mutations. Transpositions occur by a carefully regulated dissociation of the bonds that would normally maintain cohesiveness between the genes, which are laid out in a linear manner on the chromosome. Nobel Prize–winning geneticist Barbara McClintock shows that as a result of the dissociative impact, a mutation occurs that splits the chromosome into two detached segments. The rate of the mutation of these "jumping genes" is internally determined by the elements of the cell itself, and thus is not prewritten in the gene. The notion of transposition emphasizes the flexibility of the genome itself. This implies that the key to understanding genetics is the process itself, the sequence of the organized system. This can be traced a posteriori as the effect of the dissociative shifts or leaps, but these controlling agents remain immanent to the process itself and are contingent upon the rearrangements of the elements. In other words, genetics information is contained in the sequence of the elements, which in turn means that the function and the organization of the genetic elements are mutable and interdependent.

In other words, our genetic system does not operate under the law of evolution defined as selection and aggressive struggle for survival. Rather, it proceeds by variations and adaptations—that is to say by qualitative changes and structural transformations of the nonlinear and anti-teleological kind. Consequently, as Hilary Rose put it ever so wittily: "DNA, far from being the stable macho molecule of the 1962 Watson-Crick prize story, becomes a structure of complex dynamic equilibrium."[7] Nobody and no particle of matter is independent and self-propelled, in nature as in the social. Ultimately, genetic changes are under the control

of the organisms, which, under the influence of environmental factors, are capable of influencing the reprogramming of the genetic sequence itself.

As if it were capable of "learning from experience," the organism defined as the host environment of the genetic sequence plays an interactive and determining role in the transmission of genetic information. Haraway sums it up brilliantly: "A gene is not a thing, much less a master molecule, or a self-contained code. Instead, the term 'gene' signifies a mode of durable action where many actors, human and non-human meet."[8] In other words, genetic evolution is about sustained changes and unpredictable variations, not about a neotranscendental discourse of survival of the fittest.

Resting on the assumption of a fundamental and necessary unity between subject and object, the method of transpositions offers a contemplative and creative stance that respects the visible and hidden complexities of the very phenomena it attempts to study. This makes it a paradigmatic model for scientific knowledge as a whole, which becomes indexed on a definition of "Life" as *zoe*, that is to say a dynamic entity, and not as an entropic force aiming at homeostatic stability. It also shows affinity with spiritual practices like Buddhism, not in a mystical mood, but in a cognitive mode.

Further, the notion of transposition describes the connection between the text and its social and historical context, in the material and discursive sense of the term. The passion that animates all scientific and philosophical endeavors for nomadic thought is a concern for our historical situation, in so-called advanced, postindustrial cultures at the start of the third millennium. In my work, this has become an emphasis on *amor fati*, not as fatalism, but rather in the pragmatic mode of the cartographer. In other words, my working definition of a nomadic scientific method in the human and social sciences (the "subtle sciences"), as well as in genetics, molecular biology, and evolutionary theory (the "hard sciences"), cannot be dissociated from an ethics of inquiry that is adequate to and respectful of the complexities of the real-life world we are living in. I am committed to start my critical work from this complexity, not from a nostalgic reinvention of an all-inclusive holistic ideal. I want to think from here and now, from Dolly my sister and OncoMouse as my totemic divinities; from missing seeds and dying species. But also, simultaneously and without contradiction, from the staggering, unexpected, and relentlessly generative ways in which Life, as *bios* (human) and as *Zoe* (nonhuman), is fighting back. This is the kind of materialism that makes me an anti-humanist nomadic subject at heart and a joyful member of multiple companion species in practice.[9]

Nonlinear Time

Linearity is especially problematic on the methodological front for radical epistemologies and marginal discourses. The question is how to implement a coherent but nonhierarchical system of knowledge transfer and the transmission of the cultural and political memory of a past that is often not recognized by official institutional culture. Foucault's early work on genealogies as counter-memories of resistance is again foundational. Deleuze expands this pioneering effort into a conceptual critique of the powers of historical discourses over the human and social sciences. Deleuze's favorite example for this is the ravages accomplished by the teaching of the history of philosophy as a normative canonical discipline.

A more poignant example of the same methodological issue—how to intervene creatively upon a canonized *corpus* of texts and a fixed idea of historical time—is the transmission of the cultural and political capital of a centuries-old political movement such as socialism, pacifism, or feminism. Linearity is the dominant time of *Chronos*, not the dynamic time of becoming or *Aion*, and as such it is a very inadequate way of accounting for intergenerational relations among political subjects of a countercultural movement: for instance, women who belong to different historical phases of the women's movement or youth that were born after the end of Communism. Nowadays, with a third feminist wave in full swing,[10] it is difficult to avoid both the hierarchical Oedipal narrative of mothers and daughters of the feminist revolution and the negative passions that inevitably accompany such narratives. The best antidote is an anti-Oedipal approach to the question of intergenerational ethics. It results in the need to find adequate accounts for the zigzagging nature of feminist intellectual and cultural memories, as well as their respective political genealogies.

This raises methodological issues of how to account for a different notion of time, focused on *Aion*, the dynamic and internally contradictory or circular time of becoming. Thus, instead of deference to the authority of the past, we have the fleeting copresence of multiple time zones, in a continuum that activates and deterritorializes stable identities. This dynamic

vision of the subject enlists the creative resources of the imagination to the task of enacting transformative relations and actions in the present. This ontological nonlinearity rests on Spinoza's ethics of affirmation and becoming that predicates the positivity of difference. A nomadic methodology posits active processes of becoming: we need flows of empowering desire that mobilize the scientific subject and activate him or her out of the gravitational pull of envy, rivalry, and ego-indexed claims to recognition. This project requires a serious critique of institutional structures and modes of Oedipalized, competitive, and negative interaction.

Remembering in the nomadic mode is the active reinvention of a self that is joyfully discontinuous, as opposed to being mournfully consistent, as programmed by phallogocentric culture. It destabilizes the sanctity of the past and the authority of experience. This is the tense of a virtual sense of potential. Memories need the imagination to empower the actualization of virtual possibilities in the subject. They allow the subject to differ from oneself as much as possible while remaining faithful to oneself, or in other words: enduring. Becoming is molecular, in that it requires singular overthrowing of the internalized simulacra of the self, consolidated by habits and flat repetitions. The dynamic vision of the subject as assemblage is central to a vitalist, yet anti-essentialist theory of desire, which also prompts a new practice of ethics.

Desire is the propelling and compelling force that is driven by self-affirmation or the transformation of negative into positive passions. This is a desire not to preserve, but to change: it is a deep yearning for transformation or a process of affirmation. Empathy and compassion are key features of this nomadic yearning for in-depth transformation. Proximity, attraction, or intellectual sympathy is both a topological and qualitative notion: it is a question of ethical temperature. It calls for an affective framing for the becoming of subjects as sensible or intelligent matter. The affectivity of the imagination is the motor for these encounters and of the conceptual creativity they trigger.

One of the ways in which this can be accounted for is through an intensive or affective mapping of how each of us relates to and interacts with the ideas/events/codes as processes. I shall return to the affective element later. Ethically, each researcher or writer has to negotiate the often dramatic shifts of perspective and location that are required for the implementation of a process-oriented—as opposed to concept-based and

system-driven—thought. In other words, we need to rise to the challenge of more conceptual creativity.

Defamiliarization: Toward an Anti-Oedipal Science

On the methodological front, de-Oedipalizing the relationship to the nonhuman others is a form of radical pacifism that sets strong ethical requirements upon the philosophical subject. It requires for instance a form of disidentification from a century-old habit of anthropocentric thought and humanist arrogance.

A few words about the method or strategy of disidentification first. Disidentification, estrangement, or defamiliarization from certain established views entails a radical repositioning on the part of the subject. In poststructuralist feminism, for instance, this discursive strategy has also been discussed in terms of disidentifying ourselves from familiar and hence comforting values and identities, such as the dominant institutions and representations of femininity and masculinity, so as to move sexual difference toward the process of becoming-minoritarian.[11] Disidentification involves the loss of familiar habits of thought and representation. Spinozist feminist political thinkers like Genevieve Lloyd and Moira Gatens (1999) argue that socially embedded and historically grounded changes require a qualitative shift of our "collective imaginings," or a shared desire for transformations. Race and postcolonial theories have resulted on the one hand in the critical reappraisal of blackness[12] and in the other on radical relocations of whiteness.[13] Critical studies of whiteness and transnational citizenship also produced a renewed sense of critical distance from set conventions about cultural identity. This has resulted among others in a postnationalistic redefinition of Europe as the site of mediation and transformation of its own history.[14]

Defamiliarization is a sobering process by which the knowing subject evolves from the normative vision of the self he or she had become accustomed to. The frame of reference becomes the open-ended, interrelational, multisexed, and transspecies flows of becoming by interaction with multiple others. A subject thus constituted explodes the boundaries of humanism at skin level.

For example, the Deleuzian unorganic body is delinked from the codes of phallologocentric functional identity.[15] The "body without organs" sings the praise of anomalies. It also introduces a sort of joyful insurrection of

the senses, a vitalist and pan-erotic approach to the body. It is recomposed so as to induce creative disjunctions in this system, freeing organs from their indexation to certain prerequisite functions. This calls for a generalized recoding of the normative political anatomy, and its assigned bodily functions, as a way of scrambling the old metaphysical master code and loosening its power over the constitution of subjectivity. The subject is recast in the nomadic mode of collective assemblages. The aim of deterritorializing the norm also supports the process of becoming-animal/woman/minoritarian/nomadic.

Nonhuman others are no longer the signifying system that-props up the humans' self-projections and moral aspirations. Nor are they the gatekeepers that trace the liminal positions in between species. They have rather started to function quite literally as a code system of their own. This neoliteral approach to otherness begins to appear with the masters of modernity. With Freud and Darwin's insights about the structures of subjectivity a profound inhumanity is opened up at the heart of the subject. Unconscious memories drill out timelines that stretch across generations and store the traces of events that may not have happened to any one single individual and yet endure in the generic imaginary of the community. Evolutionary theory acknowledges the cumulated and embodied memory of the species. It thus installs a timeline that connects us intergenerationally to the prehuman and prepersonal layers of our existence. From the angle of critical theory, psychoanalysis propels the instance of the unconscious into a critique of rationality and logocentrism. Evolutionary theory, on the other hand, pushes the line of inquiry outside the frame of anthropocentrism into a fast-moving field of sciences and technologies of "life." The politics of life itself is the end result of in-depth criticism of the subject of humanism.[16] Pushed even further with philosophical nomadology,[17] the metaphorical dimension of the human interaction with others is replaced by a literal approach based on the neovitalist immanence of life.

This deeply materialist approach has important ethical implications. In terms of the human-animal interaction, the ego-saturated familiarity of the past is replaced by the recognition of a deep bioegalitarianism, namely that "we" are in *this* together. The bond between "us" is a vital connection based on sharing *this* territory or environment on terms that are no longer hierarchical nor self-evident. They are rather fast evolving and need to be renegotiated accordingly. Gilles Deleuze and Félix Guattari's theory of "becoming animal" expresses this profound and vital interconnection by

positing a qualitative shift of the relationship away from species-ism and toward an ethical appreciation of what bodies (human, animal, others) can do. An ethology of forces emerges as the ethical code that can reconnect humans and animals. As Deleuze put it: the workhorse is more different from the racehorse than it is from the ox. The animal is not classified according to scientific taxonomies, nor is it interpreted metaphorically. Rather, it is taken in its radical immanence as a body that can do a great deal, as a field of forces, a quantity of speed and intensity, and as a cluster of capabilities. This is posthuman bodily materialism laying the grounds for bioegalitarian ethics.[18]

Affirmative Ethics

What this means concretely is that Deleuze's vision of science cannot be dissociated from his Spinozist project of developing a science of ethics based on affects and an ethology of forces. Nietzsche is an important precedent. The eternal return in Nietzsche is the repetition of difference as positivity. Deleuzian-Nietzschean perspective ethics is essentially about transformation of negative into positive passions, i.e., moving beyond the pain. This does not mean denying the pain, but rather activating it, working it through. Again, the positivity here is not supposed to indicate a facile optimism or a careless dismissal of human suffering. In order to understand the kind of transmutation of values I am defending here, it is important to depsychologize this discussion about positivity, negativity, and affirmation and approach it instead in more conceptual terms. We can then see how common and familiar this transmutation of values actually is. The distinction between good and evil is replaced by that between affirmation and negation, or positive and negative affects.

What is positive in the ethics of affirmation is the belief that negative affects can be transformed. This implies a dynamic view of all affects, even those that freeze us in pain, horror, or mourning. The slightly depersonalizing effect of the negative or traumatic event involves a loss of ego-indexes perception, which allows for energetic forms of reaction. Clinical psychological research on trauma testifies to this, but I cannot pursue this angle here. Diasporic subjects of all kinds express the same insight. Multilocality is the affirmative translation of this negative sense of loss. Following Glissant, the becoming-nomadic marks the process of positive transformation of the pain of loss into the active production of multiple

forms of belonging and complex allegiances.[19] Every event contains within it the potential for being overcome and overtaken—its negative charge can be transposed. The moment of the actualization is also the moment of its neutralization. The ethical subject is the one with the ability to grasp the freedom to depersonalize the event and transform its negative charge. Affirmative ethics puts the motion back into emotion and the active back into activism, introducing movement, process, becoming. This shift makes all the difference to the patterns of repetition of negative emotions. It also reopens the debate on secularity, in that it actually promotes an act of faith in our collective capacity to endure and to transform.

What is negative about negative affects is not a normative value judgment but rather the effect of arrest, blockage, rigidification, that comes as a result of a blow, a shock, an act of violence, betrayal, a trauma, or just intense boredom. Negative passions do not merely destroy the self, but they also harm the self's capacity to relate to others—both human and nonhuman others—and thus to grow in and through others. Negative affects diminish our capacity to express the high levels of interdependence, the vital reliance on others that is the key both to a nonunitary vision of the subject and to affirmative ethics. Again, the vitalist notion of Life as "zoe" is important here because it stresses that the Life I inhabit is not mine, it does not bear my name—it is a generative force of becoming, of individuation and differentiation: apersonal, indifferent, and generative. What is negated by negative passions is the power of Life itself—its *potentia*—as the dynamic force, vital flows of connections, and becoming. And this is why neither should they be encouraged nor should we be rewarded for lingering around them too long. Negative passions are black holes. In affirmative ethics, the harm you do to others is immediately reflected on the harm you do to yourself, in terms of loss of *potentia*, positivity, capacity to relate, and hence freedom. Affirmative ethics is not about the avoidance of pain, but rather about transcending the resignation and passivity that ensue from being hurt, lost, and dispossessed. One has to become ethical, as opposed to applying moral rules and protocols as a form of self-protection: one has to endure.

Endurance is the Spinozist code word for this process. Endurance has a spatial side to do with the space of the body as an "enfleshed" field of actualization of passions or forces. It evolves affectivity and joy, as in the capacity for being affected by these forces, to the point of pain or extreme pleasure. Endurance points to the struggle to sustain the pain without being annihilated by it. Endurance has also a temporal dimension, about duration in time. In my work, I have theoretically transposed endurance into a Deleuzian concept of sustainability. This has been my answer to the dilemma of how to combine an ontology of becoming (the task of philosophy) with a focus on actualized and definite objects of inquiry (the task of science).

There is, however, a conceptual difficulty at stake in this discussion, which has important implications for a Deleuzian practice of science. For philosophical nomadism, the problem with sustainability is that it has the feel of a qualitative (intensive) criterion, but, in fact, it is a quantitative one. Sustainability clashes with duration, which is not the same as pluralistic speed. Speed is a trajectory, it is spatialized and it deals with concepts like bodies or actualized entities. Duration, on the other hand, is an intensity, which deals with abstract diagrams or lines of becoming. Sustainability as a quantitative measure runs the risk of becoming effective and operational within the logic of advanced capitalism, which it aims to undermine, namely the liberal individual responsibility for one's well-being. This is an axiomatic system capable of considering all qualities as quantities and of instrumentalizing them in order to feed itself.

My response to this is that the concept of sustainability is particularly relevant, albeit it in an intriguing manner. It has two reference points: sustainability as a temporal notion (duration of Life as *zoe*) and sustainability as an intensive notion (the ability to sustain intensities). It brings together both the *durée* of life and the intensities of encounters. This is for me the most direct consequence of the relational vitality and elemental complexity that mark Deleuze's thought: life is not a teleological notion, and thus it does not seek or want to express itself. Life, simply by being life, expresses itself. This is why I defend the idea of *amor fati*. To accept *amor fati* is to change one's relation to life, and in doing so, perhaps change life itself—allow it expressive intensities it would not otherwise possess.

This complex task is facilitated by adopting a nonunitary vision of nomadic subjectivity, which coupled with the idea of desire as plenitude and not as lack, produces a more transformative approach to the ethics of thinking. The stated criteria for this new ethics include: nonprofit; emphasis on the collective; viral contaminations; and a link between theory and practice, including the importance of creation. They are not moral injunctions, but frames for an ongoing experiment. They need to be experimented with collectively, so as to produce effective cartographies

of how much bodies can take, or thresholds of sustainability. They also aim to create collective bonds, a new affective community or polity.

This must include an evaluation of the costs involved in pursuing active processes of change and of recognition of the pain and the difficulty these entail. The problem of the costs within the schizoid logic of our times concerns mostly *potestas*, the quantitative, not *potentia*, or incorporeal intensities. Creation or the invention of the new can only emerge from the qualitative intensities and thus cannot apply to a notion that measures the tolerance of bodies as actualized systems. Hence again another aspect of the ethical question: if in the name of encouraging (prehuman or individual) life (*zoe*), we value the incorporeal invention of quality and primarily affect and precept; if (again, following Deleuze) we insist on the incorporeal insistence of affects and precepts or becoming (as distinguished from affected bodies and perceptions of entities), then how can we use a concept of sustainability to argue against the cost of fidelity to the concept or the precept? That would involve a corporeal criterion to the incorporeal. This is a conceptual double bind and a true ethical dilemma.

How can we combine sustainability with intensity? One line I would propose is to hold everyone, not only exceptional people like writers or thinkers but just anyone (*homo tantum*), accountable for the ethical effort to be worthy of the production of affect and precept. It is a noble ethics of overcoming the self and stretching the boundaries of how much a body can take; it also involves compassion for pain, but also an active desire to work through it and find a way across it. The ethical question would therefore emerge from the absolute difference (or *différend*) between incorporeal affects, or the capacity to experiment with thresholds of sustainability, and our corporeal fate as such and such an affected body. What ethical criterion can we invent in the context of this difference? How can one (simultaneously?) increase affectivities as the capacity to invent or capture affect and look after the affected bodies? What kind of synchronized effort could achieve this aim? In other words, what is the "cost" of the capacity to be affected that allows us to be the vehicle of creation? What would a qualitative concept of cost be? This is the core of the nomadic ethics agenda. It includes interrelationality and a relation to otherness, on the model of mutual specification and collective becoming.

· CHAPTER 9 ·

Numbers and Fractals: Neuroaesthetics and the Scientific Subject

Patricia Pisters

Scientific knowledge of the brain has evolved, and carried out a general arrangement. The situation is so complicated that we should not speak of a break, but rather of new orientations . . . It is obviously not through the influence of science that our relationship with the brain changed: perhaps it was the opposite, our relationship with the brain having changed first, obscurely guiding science. . . . The brain becomes our problem or our illness, our passion, rather than our mastery, our solution or decision. We are not copying Artaud, but Artaud lived and said something about the brain that concerns all of us: that "its antennae turned towards the invisible," that it has the capacity to "resume a resurrection from the death."

—Gilles Deleuze, *Cinema 2: The Time-Image*

THE POPULARITY of mathematics and scientific reasoning in contemporary culture is evident from popular television series such as *Numb3rs* (CBS, since 2005) and Hollywood films about mathematicians such as *Good Will Hunting* (Gus van Sant, 1997), *A Beautiful Mind* (Ron Howard, 2000), and *Proof* (John Madden, 2005). Besides a general fascination for mathematics as principle underlying all kind of phenomena in our world, these films also indicate a particular interest in the brain, the mind of the scientist in particular. It is a classic trope to feature the scientist as a mad mind, but contemporary cinema shows that something else is at stake as well. The mathematician in contemporary popular culture may be socially not adapted, even paranoid and schizophrenic, but what is going on in this particular mind is no longer considered as completely

36. Deleuze and Guattari, *What Is Philosophy?* 205.

37. James Williams, *Gilles Deleuze's* Difference and Repetition: *A Critical Introduction and Guide* (Edinburgh: Edinburgh University Press, 2003), 169.

38. Deleuze, *Difference and Repetition*, 224.

39. Ibid., 223.

40. Fredric Jameson, "Marxism and Dualism in Deleuze" in *The South Atlantic Quarterly* ("A Deleuzian Century"), ed. Ian Buchanon, 96, no. 3 (1997), 394–95.

41. Strict dualisms are always symptomatic of dualists themselves, who prefer the crude organization of the one or the other ("You're either with the terrorists or against them") for the play of differences and the percolation of countless micromovements that always subsist or insist beneath this simplification. As we have implied, Deleuze suggests that another name for this "dualism unto death" is the dialectic because the latter always augurs the organization of difference, as contrariety, and the ultimate resolution of difference, as the Absolute. Indeed, Deleuze responds to the dialectical impulse, from the time of *Difference and Repetition* all the way to *What Is Philosophy?* by suggesting that its appeal to dualism stages "the contradiction between rival opinions to extract from them suprasensible propositions able to move, contemplate, reflect, and communicate in themselves" (WIP 80).

In other words, the reduction of concepts to propositions, which the dialectic promises to resolve in a higher form of knowledge, that turns out to be no more than a juncture of opinions (*doxa*) according to a yet higher opinion (*urdoxa*).

42. Deleuze, *Difference and Repetition*, 37.

43. Ibid., 284.

44. Keith Devlin, *Mathematics: The Science of Patterns* (New York: Holt Paperbacks, 1996), 54.

45. Deleuze, *Logic of Sense*, 36.

46. Ibid., 59.

47. Ibid., 70.

48. Ibid., 59.

49. Deleuze refers to Prigogine and Stengers on several occasions, beginning in an interview on the subject of *A Thousand Plateaus* that he gave in 1980 (see *Negotiations 1972–90*, 29), and concluding with his invocation of chaos theory in *What Is Philosophy?* (226).

50. Deleuze and Guattari, *What Is Philosophy?* 206.

51. See Ilya Prigogine and Isabelle Stengers, *La Nouvelle Alliance* (Paris: Gallimard, 1986).

52. Deleuze, *The Fold*, 86.

53. Ibid., 86.

54. Deleuze, *Logic of Sense*, 59.

55. Ibid., 86. Also see Nietzsche's "The Dawn" (130).

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5. Keith Ansell-Pearson, *Viroid Life: Perspectives on N Transhuman Condition* (New York and London: Routledge, 199

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9. Donna Haraway, *The Companion Species Manifesto: I Significant Otherness* (Chicago: Prickly Paradigm Press, 2003).

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15. Deleuze and Guattari, *Anti-Oedipus: Capitalism and Schizophrenia*, trans. Robert Hurley, Mark Seem, and Helen R. Lane (Minneapolis: University of Minnesota Press, 1983).

16. Rose, "Nine Decades, Nine Women, Ten Nobel Prizes."

17. Braidotti, *Transpositions*.

18. Ansell-Pearson, *Viroid Life*.

19. Glissant, *Poetics of Relation*.

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7. Ibid., 173.

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34. Deleuze, *Cinema 2*, 293.

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37. Martin-Jones, *Deleuze, Cinema and National Identity*, 59–62.