

DELEUZE AND WEXLER:
THINKING BRAIN, BODY AND AFFECT IN SOCIAL CONTEXT

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INTRODUCTION

The cognitive and affective sciences have benefitted in the last twenty years from a rethinking of the long-dominant computer model of the mind espoused by the standard approaches of computationalism and connectionism. The development of this alternative, often named the “embodied mind” approach or the “4EA” approach (embodied, embedded, enactive, extended, affective), has relied on a trio of classical 20th century phenomenologists for its philosophical framework: Husserl, Heidegger, and Merleau-Ponty.[1] In this essay I propose that the French thinker Gilles Deleuze can provide the conceptual framework that will enable us to thematize some unstated presuppositions of the 4EA School, as well as to sharpen, extend and / or radicalize some of their explicit presuppositions. I highlight three areas here: 1) an ontology of distributed and differential systems, using Deleuze’s notion of the virtual; 2) a thought of multiple subjectification practices rather than a thought of “the” subject, even if it be seen as embodied and embedded; and 3) a rethinking of the notion of affect in order to thematize a notion of “political affect.”[2] I will develop this proposal with reference to Bruce Wexler’s *Brain and Culture*,[3] a work which resonates superbly with the Deleuzean approach.

The standard approaches use a computer metaphor for the brain-mind connection: brains, like computers, are physical symbol systems, and minds are the “software” run on those computers. The difference is in the respective computer architectures. Computationalism sees cognition as the rule-bound manipulation of discrete symbols in a serial or von Neumann architecture, which passes through a CPU (central processing unit). Connectionism, the second standard approach, is based upon another computer metaphor, but it has a different, allegedly more biologically realistic architecture: parallel distributed processing. In connectionism’s so-called neural nets, cognition is the change in network properties; that is, the strength and number of connections.

The 4EA approach, although it agrees with connectionism that a model of the mind must have realistic chance of being instantiated in brains like ours – a distributed neural architecture whereby neurodynamical processes are seen as integration or resolution of distributed / differential neural systems (Wexler, 21) – differs from both computer models by defining cognition as the direction of action of an organism in its environment, rather than as a kind of information processing. Hence one key difference is that the 4EA approach breaks with any unidirectional information processing model, in which cognition is the middle slice in what Susan Hurley called the “classical sandwich”: sensory input / processing of representations /

motor output.[4] Similarly, the 4EA schools rethink the allegedly central role in cognition of “representation,” in which a model of the world is built up inside the cognitive agent. Rather, adopting Rodney Brooks’s slogan that “the world is its own best model,” the 4EA thinkers will restrict representation to a few “offline” problems, and see the vast majority of cognition as real-time interaction of a distributed and differential system composed of brain, body, and world.[5]

In sum, then, the 4EA School sees cognition as the direction of organismic action via the integration / resolution of differential fields immanent to extended / distributed / differential bio-environmental systems.

AN ONTOLOGY OF DISTRIBUTED / DIFFERENTIAL SYSTEMS

I claim that Deleuze’s ontology can help us think the being of distributed and differential systems, as in, for example, the brain-body-world system of 4EA cognition; it also helps us think individuation in such systems as the integration of that distributed and differential system. A brief sketch of Deleuze’s ontology follows; we will then show what I will call the “radical relationality” of Wexler’s work as resonant with Deleuze’s outlook.

In Difference and Repetition,[6] we find a tripartite ontological scheme, positing three interdependent registers: the virtual, intensive, and actual. Deleuze’s basic notion is that in all realms of being intensive morphogenetic processes follow differential virtual multiplicities to produce localized and individuated actual substances with extensive properties and differentiated qualities. Simply put, the actualization of the virtual, that is, the production of the things of the world, proceeds by way of intensive processes. In a fuller picture of Deleuze’s ontology, we see that the virtual field is composed of Ideas or multiplicities, which are sets of differential elements, differential relations, and singularities; what are related are precisely the intensive processes, thought in their abstraction as linked rates of change. Beneath the actual (any one state of a system), we find “impersonal individuations” that produce system states and beneath these we find “pre-individual singularities” (that is, the key elements in virtual fields, marking system thresholds that structure the intensive morphogenetic processes). We thus have to distinguish the intense “impersonal” field of individuation and its processes from the virtual “pre-individual” field of differential relations and singularities.

The abstraction of Deleuze’s scheme is its strength, as an example will show. Deleuze himself often used Gilbert Simondon’s theory of individuation as a very simple model for “actualization.” For Simondon, crystallization is a paradigm of individuation: a supersaturated solution is “metastable”; from that pre-individuated field, replete with gradients of density that are only implicit “forms” or “potential functions,” individual crystals precipitate out.[7] The crucial difference is that crystals form in homogenous solutions, while the Deleuzian virtual is composed of “Ideas” or “multiplicities” involving differential relations among heterogeneous components. These components are processes linked in such a way that their rates of change are connected with each other. A simple example is hurricane formation, where it is intuitively clear that there is no central command, but a self-organization of multiple processes of air and water movement propelled by temperature and pressure differences. All hurricanes form when intensive processes of wind and ocean currents reach singular points. These singular points, however, are not unique to any one hurricane, but are virtual in each actual hurricane, just as the boiling point of water is virtual in each actual pot of tea on the stove.

Deleuze’s ontology has been proposed as compatible with and explanatory of the mode of being on distributed and differential systems, such as they are studied in dynamical systems

theory.[8] Dynamical systems theory shows the topological features of manifolds (the distribution of singularities) affecting a series of trajectories in a phase space. It thereby reveals the patterns (shown by attractors in the models), thresholds (bifurcators in the models), and the necessary intensity of triggers (events that move systems to a threshold activating a pattern) of material systems at many different spatial-organizational and temporal-processual scales. Dynamical systems theory enables us to think material systems in terms of their powers of immanent self-organization and creative transformation. Dynamical systems methods are widespread in neurodynamics, showing the brain as generating wave patterns out of a chaotic background.[9] During any one living act (perception, imagination, memory, action) the brain functions via the “collapse of chaos,” that is, the formation of a “resonant cell assembly” or coherent wave pattern.[10]

Making the link with Deleuze, we can see the embodied and embedded nervous system as a pre-individual virtual field: 1) a set of differential elements (reciprocally determined functions – in other words, neural function is networked: there is no such thing as the function of "a" neuron; some argue the same for higher level cognitive processes, i.e., that they emerge from global brain activity and hence cannot be understood in isolation); 2) with differential relations (linked rates of change of firing patterns); 3) marked by singularities (as critical points determining turning points between firing patterns). The dynamics of the system as it unrolls in time are intensive processes or impersonal individuations, as attractor layouts coalesce and disappear as singular thresholds are passed. Learning then is the development of a repertoire of virtual firing patterns as they relate to bodily interactions with the world. Any one decision is an actualization, a selection from the virtual repertoire, that is, the coalescing of a singular firing pattern; this is modeled by the fall into a particular basin of attraction from the attractor layout "proposed" by system dynamics.

I will illustrate the resonance of Deleuze's work with that of the 4EA cognition school by reference to Wexler's Brain and Culture. First, an overview of Wexler's book. Wexler makes a series of interconnected points: our sociality and our brain structure / function have co-evolved, such that humans have evolved for a long period (though young adulthood) of intense socially mediated neuroplasticity (Wexler, 16; 142). In fact, the most socially sensitive plastic parts of the human brain are precisely the ones whose proportions relative to other brain structures distinguish humans compared to other primates (e.g., frontal and parietal lobes, involved in decision making, impulse control, etc) (31; 105). However, this neuroplasticity is relatively reduced in adulthood. In a formula, children need sensorimotor and social stimulation to form neuropsychological structures, while adults look to shape their world in accordance with previously formed structures; these are linked and mutually reinforcing in that different cultures have different characteristic sensorimotor and social interaction patterns (e.g., the “comfort zone” for conversations – how close people stand to each other while talking – varies across cultures). It is important to emphasize that both children and adults work in a system of structuring structures: input produces a structure that shapes further input; once activated, these structuring structures are reinforced since consonance of input and structure produces pleasure and dissonance produces pain (155). The “structuring structure” scheme is clear here in Wexler's summary of studies of prejudice: “First, since these internal structures select and value sensory input that is consistent with them, they create an exaggerated sense of agreement between the internal and external worlds. Second, since internal structures shape perceptual experience to be consistent with the structures themselves, they limit further alteration of brain structure by environmental input” (155). The difference is that adults – or at least some adults, those in

avored social positions -- can act on the world according to this principle (or at least subconsciously select input conforming to previous structures), while children's action in this regard is largely limited to adapting to what is the case (182). However, due to the complexity and change of current cultural conditions, what is the case for children often differs considerably from the experiential structures of adults (6; 142). This difference in neuroplasticity and experiential structures sheds light on generational conflict, bereavement and immigrant experience, and social conflict in multicultural situations (144).

Turning from this summary of his points, we see that Wexler's opening chapter, a primer on neuroscience, shows the resonance with Deleuze clearly. Wexler emphasizes that higher-level cognitive function (thinking as well as sensorimotor perception / action) is an emergent process that occurs as the result of the integration of firing patterns in multiple brain structures; it cannot be located in individual neurons (22). This neuronal emergence is deepened by Wexler to a position that falls in line with the 4EA School, which locates cognitive functions as those of an organism in its environment, not simply as the result of brain activity alone. The following passage clearly shows Wexler's neuro-environmental emergentism: "The specific patterns of all the intricate connections among neurons that constitute these functional systems are determined by sensory stimulation and other aspects of environmentally induced neural activity" (22). Here it is clear that cognition is emergent not simply from multiple brain systems, but from a differentiated system in which brain, body, and world are linked in interactive loops. Indeed, the whole thrust of Wexler's position serves to "minimize the boundary between the brain and its sensory environment, and establish a view of human beings as inextricably linked to their worlds by nearly incessant multimodal processing of sensory information" (9).

Wexler's view of humans as embedded in their (largely social) environments has profound philosophical implications, as it entails that we must defeat any lingering tendencies to conceive of humans as individuated substances endowed with properties; human beings are individuated, but as singular patterns of somatic and social interactions. Character is not a set of properties of a substance but the tendency to partake in a pattern of social interaction. We can see the connection with Deleuze if we reformulate his ontology as what we can call an "interactive process" ontology. From this perspective, it is the interaction of intensive individuation processes that forms the contours of the virtual field. At bottom, the actual as substance is an illusion; it is really just a process that is slow enough relative to our sensory processes that it makes practical sense to treat it as a substance.

If that is the case, then we human beings are not substances but processes, and those processes are not individuated by properties but as singular patterns of social, neural and somatic interaction. The embodied and the embedded aspects of our being intersect – we are bodies whose capacities form in social interaction. "Singular patterns of social and somatic interaction" means that we are what we can do with others – our embodied capacities, which develop in the history of the social interactions we have had up to the present, intersect with the similarly constituted embodied capacities of the others we now encounter. The creative potential of these encounters is such that we do not know who we are, we do not know what human nature is, until we experiment with what we can do with others. This is not to endorse a naïve and outmoded social constructivism; but if plasticity is our nature, as Wexler argues, then that nature is certainly more open than programmed, or perhaps better it is programmed to be open – within limits and with certain universal patterns.

Let us continue. Wexler's treatment of human studies in his chapter on the effects of the social environment on experience-mediated neural structures stresses the mother-infant dyad (2;

96-100). He is careful, and we have to be careful too, to avoid any "fusion" images, which distorts individuation by seeing it as separation from a prior fusion, with all the anxiety about engulfment that entails. The dyad is a patterned interactive process, with the caregiver providing a scaffold, a supplement, which provides structure just beyond what the infant is capable of at any one moment, but which the infant can internalize (109). In this way, self-regulation shifts from the parent-regulated dyad to the developing infant (105). But the infant has some capacity for self-identification, some crude and vague but active body schema or else it could not imitate.[11] The important thing to keep in mind is that what is internalized is a pattern of interaction, not the properties of an independent substance. We come back to this formula: we are patterns of interaction. That is our being. We are not independent substances which "relate" to other substances. Wexler writes in a key passage: "the relationship between the individual and the environment is so extensive that it almost overstates the distinction between the two to speak of a relation at all" (39).

This is what I will call Wexler's "radical relationality." A formula to capture this position might be: "relations" are primary, and the relata are only nodes of multiple relations. Radical relationality means that being human is composed of relations; we do not "have" relations, but we are relations all the way down. Over time, we are the patterns of the processes of forming and reforming of relations. In light of his radical relationality, Wexler will imply that substantiality is an illusion: "individuals often have an exaggerated sense of the independence of their thought processes from environmental input" (39). This exaggerated sense of independence happens because of a substantializing illusion: "Thus, as we develop into unique individuals as a result of both our unique cumulative interactions with the environment and our unique hereditary characteristics, our uniqueness seems a property of us" (40). But that "seeming" to possess "properties" is an illusion, or better, the result of a bad ontology: we are not substances with properties, but singular patterns of interaction, singular ways of integrating and differentiating a multidimensional differential social-somatic field. This does not deny individuality, but sees it as an ongoing, self-modulating, process of individuation, that is always in touch with a "metastable" differential field.[12]

Wexler's radical relationality comes out in his refreshingly open-minded discussion of psychoanalysis, in which he distinguishes an individualist and "drive" oriented theory from an interactional one (123). The process of internalization is one of the main modes of our relationality. But what must always be kept in mind to appreciate Wexler's radical relationality is that the target of internalization is "interpersonal or even multiperson processes that had not previously existed in any particular individual. That is, the qualities of the developing individual arise from interactive combinations of processes based on several individuals" (125-126). Radical relationality thus entails emergent inter-individuality, a notion we will see again in the discussion of affect. The important thing focus upon here in relating Wexler's radical relationality and Deleuze's interactive process ontology is the notion of individuation as the process of singularizing a pattern of interactional processes. Individuation is the creation of a pattern by which one navigates, by differentiation and integration, a multidimensional differential social field. As Wexler puts it in another of his radically relational passages: "what was first external and interpersonal becomes internal structure. Adolescence and young adulthood are occupied with the dual tasks of integrating internal structures derived from multiple sources into a functionally coherent whole and articulating a personal ideology that leads to a niche in the general social matrix that is consistent with the internal structures" (136-137; emphases added). To repeat the key point: the target of internalization is a novel pattern of

interaction, “multiperson processes that had not previously existed in any particular individual” (125). Wexler puts it like this: human development is a matter of “the early shaping of the infant and child's psyche by the human-influenced environment, with the unique mixing of qualities from different adults and the internalization of historically influenced interpersonal processes” (128). The crux of Wexler's book is this creative novelty produced by radical relationality, which in its synchronic emergence allows cultural variability and in its diachronic, dynamic aspect sets up generational interchange.

POPULATION THINKING: THE MULTIPLICITY OF BODIES POLITIC

Cognitive science, even the 4EA schools, is still beholden to two unexamined presuppositions: *first*, that the unit of analysis is an abstract subject, “the” subject, one that is supposedly not marked in its development by social practices, such as gendering, that influence affective cognition, and *second*, that culture is a repository of positive, problem-solving aids that enable “the” subject. So the second way to use Deleuze to expand and deepen the 4EA School is to turn to population thinking to describe the development and distribution of cognitively and affectively important traits in a population as a remedy to this abstract adult subject.

To make the connection with Wexler, we note that Chapter 4, “Self-Preservation and the Difficulty of Change in Adulthood,” is the turning point of his book. Wexler first discussed socially mediated neuroplasticity in infancy, childhood, and adolescence so that individuation is a process of singularizing a pattern of social interaction. He now turns to discuss adult processes that seek to conserve mature patterns by selective attention to, or active shaping of, the world. The first adult process alters the perception of the existing world, that is, it works on the present from the perspective of the past. The second changes the world to “increase the likelihood that subsequent events will be consistent with pre-existing internal structures” (143), that is, it works on the present to make the future conform to the past. Wexler puts the transition from childhood to adulthood as a change in the relation of learning and power of action: “we learn the most when we are unable to act. By the time we are able to act on the world, our ability to learn has dramatically decreased” (143).

Wexler’s take on our genetic endowment as the capacity for experientially mediated neuroplasticity resonates well with a school of biological thought, Developmental Systems Theory (DST), which also resonates with Deleuze. The DST thinkers demand that we think about the social environment in which capacities develop.[13] Most of our capacities are not genetically determined; genes are a developmental resource, but there are other resources, intra-organismic and extra-somatic, (e.g., recurrent social practices), that need to be taken into account. And once we are in the social realm, the cat is out of the bag. There can no longer be an abstract subject, but populations of subjects, with varying distributions of capacities. And the practices that produce these capacities can be analyzed with political categories. Following Deleuze's bio-political orientation, we can call the socially embedded person the “body politic.”

The relationality of bodies politic is shown when we consider that access to training in affective and cognitive coping skills, and hence the development of those skills, is differentially distributed with regard to the categories of masculine and feminine. Feminized and masculinized bodies politic have different “spheres of competence”: a flat tire can appear as a mildly irritating challenge or as an insurmountable problem; a subway entrance as the enticing gateway to the city or as an anxiety-producing danger. Iris Marion Young's “Throwing Like A Girl” is the classic piece in discussing the restricted body competence of the feminized body-subject.[14] Young's

critique is aimed at Merleau-Ponty, in which the assured competence of the presumably neutral or non-gendered body subject hides a masculinist presupposition.[15]

But this is still too simple. It does no good to replace a single abstract subject, "the" body politic, with two abstractions, "the" feminized and "the" masculinized body politic. We need to think in terms of a range of gendering practices that are distributed in a society at various sites (family, school, church, media, playground, sports field ...) with variable goals, intensities, and efficacies. These multiply-situated gendering practices resonate or clash with each other and with myriad other socializing practices (racializing, "class-ing," "religionizing," "nationalizing," "neighborhoodizing" ["that's the way we roll"] ...). In other words, we have to think a complex virtual field of these differential practices, a complex phase space for the production of bodies politic, with shifting attractor layouts as the subjectification practices—intensive morphogenetic or individuating processes, to use Deleuze's terminology—clash or resonate with each other.

But even this is still too simple, as these gendering practices also enter into complex feedback relations with the singular body makeup of the people involved; these corporeal constitutions are themselves regionalized slices of the virtual, modeled with a phase space of what that body can do, its own habitual yet variable patterns of attractor layouts. These complex dynamics cannot be analyzed into a relation of independent and dependent variables, no matter how powerful the regression analysis one attempts in order to isolate their effects. There is no one magic element that enables us to find the key to gender or other politically important categories.

Lacking a population perspective on the development of affective cognition capacities, the abstraction of the embodied-embedded school impoverishes its notion of "cultural scaffolding" by relegating the cultural to a storehouse of heuristic aids for an abstract problem-solver who just happens to be endowed with certain affective cognition capacities qua the ability to interact successfully with the people and cultural resources to which it just happens to have access. But not every subjectification practice is empowering. It is not just that sometimes one is denied access to an empowering practice. Some cultural practices positively harm individuals, instilling affective / cognitive traits that help keep them in subservient positions via an "internalization" of negative self-image and so on. This is not to discount raw coercion, but to call attention to its relative lack of importance in most social situations. As Deleuze says, following Spinoza and Wilhelm Reich, the real social mystery is: "Why do men fight for their servitude as stubbornly as though it were their salvation?"[16] The real bio-cognitive or "mind in life" question has to be the level of selection. Let us say that a certain distribution of capacity X holds in population Y. Why do we think we have had individual-level selection for reproduction of that trait, i.e., that each trait is adaptive for each subject? With group selection (in this case, selection for sets of subjectivizing practices that reliably yield a certain distribution of traits), then traits might be passed on that harm some individuals, but benefit the stability of the group in creating a dominant class who benefit from the disabling effects of those traits on the subordinate class.[17]

From this perspective, Wexler's bio-neuro-cultural standpoint would be helped by more emphasis on population variability, in two ways. First, the neuropsychological conservatism Wexler notes in adulthood varies within a population, so that some adults remain in search of novel experiences. Now as Wexler notes, sometimes this novelty is just variation on familiar themes (17). But can we design a culture such that what people are used to is the search for novelty? I admit that you cannot just value novelty for its own sake. You do have to have familiarity and repetition, if only as repose from novelty searching. And, some novel experiences

shouldn't be experimented with. So we do need some *normative standard*: we should search for novel ways of empowering people to search for novel means of empowering others. In other words, our challenge is to make empowerment a radiating, horizontal social process. It is not like we are going to run out of such challenges in this quest; there is more than enough injustice to fight; we can let the ones who reach utopia worry about being bored. Thus we can say that some adults seek to "conserve" their inner neuropsychological structure by selecting friends who fight with them against unjust social structures and for positive social change. That is, they "conserve," in Wexler's sense, the fight against "conservatism" in the political sense. So what would be pleasant for them is not the conservation of an (unjust) social structure, but the change of that social structure, to which end they seek to conserve the fight against that structure.

Second, attention to population variability is needed to attend to disempowerment right here at home. It is not just immigrants who face disempowering dissonance between internal structures and external world. In any one society there are many native people who occupy "subject positions" that are devalued by the larger culture. Even though it is a great advance to talk about socially-mediated neuroplasticity and the attendant notion of human ontology as the establishment of patterns of social interaction, we have to talk about populations of subjects, many of whom suffer disempowering subjectification practices. The key here is to propose a level of analysis that would not be merely idiosyncratic, but that produces traits that would be reliably repeated and that would be open to political analysis. This is of course the major problem of feminism, race theory, queer theory, and other such analyses: where to locate the analysis so that you avoid the Scylla of personal anecdote and the Charybdis of ignoring difference altogether. Can we isolate structured subjectification practices that reliably reproduce populations with gendered and racialized subjects?

POLITICAL AFFECT

For our third point, we will develop the notion of "political affect." As a first approximation, we can say that for Deleuze affect is de-subjectified emotion. Although emotion as a subjective process is the standard understanding, let us follow the thread of radical relationality we have seen in Wexler in his treatment of emotion as "an interindividual process that alters the moment-to-moment functional organization and activation patterns of the brain in the individuals who are interacting" (36). To appreciate the full radicality of this notion of emotion as an "interindividual process" we must add that those neural changes have to be thought in relation to the modifications to the emergent functional unit of the couple or group in which the component individuals are interacting. The neural bases of this interindividual process are found in each person's brain, but the unit we are analyzing is non-subjective, but relational, that is, inter-individual. To emphasize the interindividuality of such non-subjective emotion, Deleuze and Guattari will call it "affect."

We should also note at the outset that this emergent neuro-corporeal-social emotional process need not only be equilibrium-seeking; too often any mention of group processes is seen as equilibrium-seeking (negative feedback) as in "functionalist" sociology. Rather, we are all familiar with interpersonal emotions that spin out of control in positive feedback loops (a mob rage, of course, but on the positive side of the ledger, falling in love cannot really be seen as equilibrium-seeking, even if a stable loving couple results, for that "stability" can be a mutually

reinforcing dynamic process of empowerment that never settles down to anything we can describe as an "equilibrium."

In a later discussion of "a form of internally driven prejudgment of what is perceived" (152), we once again see Wexler's radical relationality. Wexler cites studies of "emotional valence" assigned to words and images in cross-racial contexts, and concludes "such prejudice demonstrates the effect of interpersonal modeling and sociocultural education on internal processes that alter the perception and valuation of stimuli" (154). We must be careful not to limit the notion of "political affect" to that of "prejudice," since, as Wexler notes, prejudice is an example of a "general process," in which "beliefs derive directly from sociocultural input, including the internal structures of important adults to whom the individual is exposed during childhood" (152). But as we have seen above, the structures of these adults are not substances, but are radically relational in their turn. Adult structures are themselves individuations of a distributed and differential social field. The key point bears repeating. We do not internalize the structures of a single, substantial other. Rather, as we have seen, the target of internalization in Wexler's model is "interpersonal or even multiperson processes that had not previously existed in any particular individual. That is, the qualities of the developing individual arise from interactive combinations of processes based on several individuals" (125-126). Thus, Wexler's radical relationality implies that we are the patterns of the processes of forming and reforming relations.

With this preliminary, let us develop a Deleuzean notion of political affect. First, a negative distinction: although affect is felt, it is not equal to "subjective feeling." Rather, it can often precisely be "de-subjectifying" or "de-personalizing." (That is, affect can be the move from the actual to the "impersonal" intensive.) Just as for Deleuze and Guattari pleasure is the subjective appropriation of joy, subjective feeling is the subjective appropriation of physiological-emotional changes of the body, the recognition that "I" am feeling this way.[18] Deleuze and Guattari's point about affect's extension beyond subjective feeling dovetails with extreme cases of rage and panic as triggering an evacuation of the subject as automatic responses take over; drastic episodes of rage and fear are de-subjectivizing. Thus the agent of an action undertaken in a rage or panic state is the embodied "affect program" acting independently of the subject.[19] Here we see affect freed from subjective feeling. There can be no complaints about eliminating the "first person" perspective in studying these episodes of political affect, because there is no "first person" operative in these cases. Agency and subjectivity are split; affect extends beyond feeling; the body does something, is the agent for an action, in the absence of a subject. This affect and body agency beyond the subject can be key in concrete problem of state violence. If political sovereignty entails a monopoly on legitimate violence, then the forces of order have to be able to act. But this is less easy than it sounds. So rages and reflexes and quick reactions are (always partial) solutions of this "problem."[20]

Second, we have to appreciate the eco-social embeddedness of affect. Affect indicates that living bodies do not negotiate their worlds solely—or even for the most part—by representing the features of the world to themselves, but by feeling what they can and cannot do in a particular situation. Deleuze and Guattari follow Spinoza, defining affect as a body's ability to act and to be acted upon, what it can do and what it can undergo.[21] Affect has two registers, "passive" and "active." In the "passive" register, it is being affected, that is, undergoing the somatic change caused by encounter with an object; this aspect of affect can also be called "affection" as the composition or mixture of bodies, or more precisely the change produced in the affected body by the action of the affecting body in an encounter. In the "active" register,

affect is the felt change in power of the body, the increase or decrease in perfection, felt as sadness or joy. There are multiple possibilities here. The encounter can (1) enhance the power of one of the bodies and decrease that of the other (in eating, or in enslavement), or it can (2) decrease both (in a mutually destructive encounter), or it can (3) increase both (in a mutually empowering encounter, what Deleuze and Guattari call a “consistent” assemblage).

The primary contact with another being in the world is a feeling of what the encounter of the two bodies would be like; what the assemblage to be formed would be like (the mechanism for this felt imaginal encounter is what Antonio Damasio calls the “as-if” loop producing a “somatic marker.”)[22] As you move into an assemblage, you are de-personalized or de-territorialized: you form new habits. Now in this de-personalization you have to maintain homeostatic viability constraints, but we must recognize the political as well as the biological sense of the term “organism” for Deleuze and Guattari.[23] The organism is maintained not simply by homeostasis at the physiological level, but by its insertion into a social setting that establishes its affective structures, that is, the limits and potentials, the patterns, thresholds and triggers, of its affects qua power potentials. Affect is the feeling for variation in power; it is de-personalizing intensity as opening up access to the virtual, to the differential field, Idea, or multiplicity of the situation. As Brian Massumi puts it: “Affect is the virtual as point of view, provided the visual metaphor is used guardedly.”[24] It is the feeling of change in the relation of bodies entering a new assemblage (you’re always in an assemblage, that is, you are always an *haecceity*), and the feeling of how the present feeling might vary in relation to what might happen next in a variety of futures. Affect then is a resolution of a complex differential field, relating changes in the relations among changing bodies.

For Deleuze and Guattari, affect is inherently political: bodies are part of an eco-social matrix of other bodies, affecting them and being affected by them; affect is part of the basic constitution of bodies politic. Here we need the distinction between pouvoir and puissance. We will have to exaggerate differences for clarity, and need to remember that everyday French usage does not draw such clear distinctions. Nonetheless, we can say that pouvoir is transcendent power: it comes from above. It is hylomorphic, imposing form on the chaotic or passive material of the mob. In its most extreme manifestation, it is fascistic: it is expressed not simply as the desire to rule, but more insidiously as the longing for the strong leader to rescue us from the chaos into which our bodies politic have descended. Puissance, on the other hand, is immanent self-organization. It is the power of direct democracy, of people working together to generate the structures of their social life. The difference between pouvoir and puissance allows us to nuance the notion of joyous and sad affect with the notions of active and passive power.

Consider the paradigm case of fascist joy. The Nazis at the Nuremberg rallies were filled with joyous affect, but this joy of being swept up into an emergent body politic was passive. The Nazis were stratified; their joy was triggered by the presence of a transcendent figure manipulating symbols—flags and faces—and by the imposition of a rhythm or a forced entrainment—marches and salutes and songs. Upon leaving the rally, they had no autonomous power (puissance) to make mutually empowering connections. In fact, they could only feel sad at being isolated, removed from the thrilling presence of the leader. They had become members of a “society of the spectacle” in that their relations with others were mediated by the third term of the spectacle the others had attended (the in-group) or had not attended (the out-group).[25]

Political affect then includes an ethical standard: does the encounter produce active joyous affect? Does it increase the puissance of the bodies, that is, does it enable them to form new and mutually empowering encounters outside the original encounter?

CONCLUSION

How can we put the virtual plus the thought of population of subjects plus political affect together in the context of Deleuze and cognitive science? A clue comes to us from Alva Noë's notion of perceptual content as virtual.[26] This means that concrete perception happens as the resolution of a differential field, an Idea or multiplicity. The differential elements are movement and perceptual presence or appearance; the differential relations are those between these two elements; and the singularities thrown out in those relations as thresholds where qualitative perceptual change occurs (e.g., move too close to a pointillist painting and all you see are color dots, no longer forms).[27] I propose using Noë's account as a model for the perception of "social affordances." When we make sense of a situation, we determine the potentials in this encounter for making assemblages. That is, we let de-personalizing affect arrive. This de-personalizing affect as "sense-making" has different temporal scales: it is often an extended process of dynamic exchange / negotiation, but it can also arrive as a flash of insight, a feeling of what is possible. This feeling can be a definite reading of the situation ("this stinks!" or "this is for me!"), but it can also sometimes be just a vague feeling of good or bad possibilities ("I don't know, I can't quite put my finger on it, but just maybe ..."). Neurologically, intensive sense-making happens via Damasio's somatic markers generated by "as-if loops," which tell us what it would feel like to live through such and such a scenario.

Now if we want to use Noë's notion of virtual perceptual content to help us think affective cognition in its concrete political context, we cannot stick with the physical / visual vocabulary of a differential relation between "movement" and "appearance." The differential relation in the sense-making of bodies politic is that between potentials for becomings or assemblage formations which vary as the members of the encounter make a "move" in the social game, moves in which someone offers, commands, cajoles, persuades, pleads, and so on. The possible moves of a situation are the moves allowed by the social grammar and syntax (there is a syntax at work here in social situations: the order of moves is somewhat prescribed: some moves just cannot come after other moves). But of course such "grammar and syntax" are not propositional rules, but embodied competences which are affects or feelings for the potential. But these possible moves are themselves taken up in relations of change: what Deleuze and Guattari call "de-territorialization" (leading to what would be unexpected, because changing the allowable patterns of the game) and "re-territorialization" (settling back into an old game, or setting forth the potentials of the new game).[28]

To sum up, then, affective cognition unfolds in a social context between embodied subjects formed by that context. But "context" is too static: there are multiple levels and time-scales involved. That is, in de-personalizing affective cognition, we see bodies in concrete situations act in real time with response capacities that have crystallized over developmental time-scales as produced by multiple subjectivation practices in a distributed / differential social field. Thus a sense-making encounter, a de-personalizing case of affective cognition, is an emergent functional structure, a resolution of a dynamic differential field operating at multiple levels and different time-scales as those bodies navigate the potentials for the formation of new assemblages.

NOTES

1 Hubert Dreyfus's What Computers Can't Do (Cambridge, Mass.: MIT Press, 1972; revised and reissued as What Computers Still Can't Do in 1992) influenced the embodied mind school with its critique of computationalism and connectionism. Technically speaking, however, Dreyfus's approach is better called Heideggerian than belonging to the embodied mind school. That is to say, he rejects the notion of "mind" entirely, so that it being embodied is not an advance for him. The major works of the embodied mind school proper are: Francisco Varela, Evan Thompson, and Eleanor Rosch, The Embodied Mind (Cambridge, Mass.: MIT Press, 1991); Andy Clark, Being There (Cambridge, Mass.: MIT Press, 1997); Shaun Gallagher, How the Body Shapes the Mind (New York: Oxford University Press, 2004); Alva Noë, Action in Perception (Cambridge, Mass.: MIT Press, 2005); Michael Wheeler, Reconstructing the Cognitive World (Cambridge, Mass.: MIT Press, 2005); and Evan Thompson, Mind in Life (Cambridge, Mass.: Harvard University Press, 2007).

2 I develop these themes at length in John Protevi, Political Affect: Connecting the Social and the Somatic (Minneapolis: University of Minnesota Press, 2009).

3 Bruce Wexler, Brain and Culture: Neurobiology, Ideology, and Social Change (Cambridge, Mass.: MIT Press, 2006). Hereafter cited in text.

4 Susan Hurley, Consciousness in Action (Cambridge, Mass.: Harvard University Press, 1998), 21.

5 See Wheeler, Reconstructing the Cognitive World, for a treatment of "action-oriented" representation. A radical anti-representationalist approach is found in Anthony Chemero, Radical Embodied Cognitive Science (Cambridge, Mass.: MIT Press, 2009).

6 Gilles Deleuze, Difference and Repetition, trans. Paul Patton (New York: Columbia University Press, 1994).

7 Gilbert Simondon, L'individu et sa genèse physico-biologique (Grenoble: Editions Jérôme Million, 1995).

8 The key works here are Brian Massumi, A User's Guide to Capitalism and Schizophrenia: Deviations from Deleuze and Guattari (Cambridge Mass.: MIT Press, 1992), and Manuel DeLanda, Intensive Science and Virtual Philosophy (London: Continuum, 2002). See also Mark Bonta and John Protevi, Deleuze and Geophilosophy (Edinburgh: Edinburgh University Press, 2004).

9 J. A. Scott Kelso, Dynamic Patterns: The Self-Organization of Brain and Behavior (Cambridge, Mass.: MIT Press, 1995). See also, Francisco J. Varela, "Resonant Cell Assemblies: A new approach to cognitive functions and neuronal synchrony," Biological Research 28 (1995): 81-95.

10 Francisco J. Varela, F. J. Lachaux, J.-P. Rodriguez and J. Martinerie, "The Brainweb: Phase Synchronization and Large-Scale Integration," Nature Reviews: Neuroscience 2: 229-239 (2001).

11 Gallagher, How the Body Shapes the Mind, 69-72, provides an excellent analysis of numerous studies on infant face recognition which can only be made sense of on the presupposition of a "body schema."

12 The term "metastable" comes to Deleuze from Simondon, but its independent use in Kelso, Dynamic Patterns, provides evidence that Deleuze's ontology can inform our readings of

dynamic systems research, and in particular, neurodynamics.

13 The key work here is Susan Oyama, The Ontogeny of Information: Developmental Systems and Evolution (Durham NC: Duke University Press, 2000). See also the essays in Susan Oyama, Paul Griffiths and Russell Gray, Cycles of Contingency (Cambridge Mass.: MIT Press, 2001).

14 Iris Marion Young, On Female Body Experience: 'Throwing Like a Girl' and Other Essays (New York: Oxford University Press, 2005).

15 See also, Judith Butler, "Sexual Ideology and Phenomenological Description: A Feminist Critique of Merleau-Ponty's Phenomenology of Perception, in The Thinking Muse: Feminism and Modern French Philosophy, eds. Jeffner Allen and Iris Marion Young (Bloomington: Indiana University Press, 1989).

16 Gilles Deleuze and Félix Guattari, Anti-Oedipus, trans. Robert Hurley, Mark Seem, and Helen R. Lane (Minneapolis: University of Minnesota Press, 1977), 29.

17 For a general introduction to questions of group selection, see Elliott Sober and David Sloan Wilson, Unto Others: The Evolution and Psychology of Unselfish Behavior (Cambridge Mass.: Harvard University Press, 1998).

18 Gilles Deleuze and Félix Guattari, A Thousand Plateaus, trans. Brian Massumi (Minneapolis: University of Minnesota Press, 1987), 155.

19 Paul Griffiths, What Emotions Really Are: The Problem of Psychological Categories (Chicago: University of Chicago Press, 1997).

20 John Protevi, "Affect, Agency, and Responsibility: The Act of Killing in the Age of Cyborgs," Phenomenology and the Cognitive Sciences, 7.2 (2008): 405-413.

21 Deleuze and Guattari, A Thousand Plateaus, 253-261.

22 Antonio Damasio, Descartes' Error (New York: Avon, 1994) and The Feeling of What Happens (New York: Harcourt, 1999).

23 Protevi, Political Affect, 89-112.

24 Brian Massumi, Parables for the Virtual: Movement, Affect, Sensation (Durham NC: Duke University Press, 2002), 35. Italics in original.

25 Guy Debord, The Society of the Spectacle, trans. Donald Nicholson-Smith (New York: Zone Books, 1994).

26 Noë, Action in Perception, 215.

27 Daniel W. Smith, "Deleuze's Theory of Sensation: Overcoming the Kantian Duality," in Paul Patton, ed., Deleuze: A Critical Reader (Oxford: Blackwell, 1996), 29-56.

28 Massumi, Parables for the Virtual, 71-80.