

NEUROPHILOSOPHY

NEURONORMATIVITY 

MATERIALISM

NATURALISM

VYGOTSKY

Brain Theory Between Utopia and Dystopia: Neuronormativity Meets the Social Brain

Charles T. Wolfe

The brain in its plasticity and inherent “sociality” can be proclaimed and projected as a revolutionary organ. Far from the old reactions which opposed the authenticity of political theory and praxis to the dangerous naturalism of “cognitive science” (with images of men in white coats, the RAND Corporation or military LSD experiments), recent decades have shown us some of the potentiality of the *social brain* (Vygotsky, Negri, and Virno). Is the brain somehow inherently a utopian topos? If in some earlier papers I sought to defend naturalism against these reactions, here I consider a new challenge: the recently emerged disciplines of *neuronormativity*, which seek in their own way to overcome the nature-normativity divide. This is the task of a materialist brain theory today.

The Setup: Horns of a Dilemma

There is a lingering zone of what one might think of as sore cognitive muscle tissue in the area of materialism. It is an area of both contested territory and in some cases, a kind of pathos of distance of the “Ugh! Keep that thing away from me!” sort. I have in mind the combination of materialism as an emancipatory socio-political project (which need not be construed in strictly Marx-Engels terms, if we think of Lucretius et al.) and as a cold-hearted “spontaneous philosophy of the men in white coats,” e.g., nefarious neurophilosophers. Faced with this rather massive alternative, this choice between two projects, I have stubbornly been saying since some discussions with Negri in the late 90s,¹ we should choose: both! And for people steeped in a Germanic tradition, I can push the following familiar button and say, “this is also about ceasing to take for granted a distinction between Natur- and Geisteswissenschaften (i.e., the natural sciences and the humanities).” If the brain is always already social, as even Marx states (Virno 2001), this implies, although not with necessary implicature, that knowledge of the brain is not irrelevant to knowledge of the social world.² No absolute divide between a hermeneutical world of free, self-interpreting subjects with their values, norms, and struggles, and a natural world of quantities, electroencephalograms, “men in white coats” and so-called “science.”

But even this choice of both, in which the brain is, now a naturalistic object of study like a liver or a lung, now a political object (dual-aspect?), leads us, like a gamer-agent in a virtual world, into further pathways with further choices of which doors to go through. For the brain is frequently presented both as a potential site and substance of radical transformation—a utopian form of “wonder tissue,” a “difference machine,” an “uncertain system,” and, quite symmetrically, as the focus and resource of consumer neuroscience, semicapital³ or neurocapitalism. It’s a bit like the old chestnut about the saving power lying where the greatest danger is,⁴ except the other way round. Indeed, regarding the fields of neuronormativity, Slaby and Gallagher have recently observed that “the particular construal of self currently championed by social neuroscience—with a focus on social-interactive skills, low-level empathy and mind-reading—neatly corresponds with the ideal skill profile of today’s corporate employee” (Slaby and Gallagher 2014).

- 1 See Negri’s rather subtle comments on forms of materialism, from the more naturalistic to the more political, in the original Italian preface to *Alma Venus* (Negri 2000).
- 2 See Wolfe 2010. The “general productive forces of the social brain” appears in Marx’s *Grundrisse*, notebooks VI-VII, a text known as the “Fragment on Machines” (Marx 1973, 694) which has had particular influence on the Italian Autonomist tradition (see also Virno 2001).
- 3 Franco Berardi’s term for our world of “post-Fordist modes of production” (see Terranova 2014).
- 4 “Wo aber Gefahr ist, wächst/ Das Rettende auch” (Hölderlin, “Patmos,” 1803).

This brain dilemma is not exactly the opposition between the natural and the normative, with natural as a loose association of positions which have a lack of fear of “science” or “naturalism” in common, since they consider a continuum of theorizing social and political action, for instance, in light of knowledge of the structure of the affects: a conglomerate in which Vygotskian conceptions of brain and society, Negri’s conceptions of general intellect and social brain, and loosely political versions of neurophilosophy come together. Here, **natural** asserts that the brain is social and material (and that this combination is potentially emancipatory), whereas **normative**, like Cassandra, warns of danger.⁵ For this kind of denunciation can come not from old style humanistic Marxism, but from farther left, as with Tiqqun’s piece of learned, paranoid critique of the dangers of “the cybernetic hypothesis” (Tiqqun 2001).⁶

Faced with this kind of knee-jerk, or is it die-hard, anti-cognitivism, one could respond by reassuring the interlocutor: no, *tovarich*, I may read the neurophilosophers Churchlands (1986, 2002) but my heart is in the right place. One can also suggest that such a critique is a kind of paleo-Marxism, not up to date with immaterial and cognitive turns. I might suggest more broadly a classic “divide and conquer” move: what would the anti-cognitivist say about a thinker like Guattari, who denied, “as opposed to a thinker such as Heidegger,” that “the machine is something which turns us away from being”?

I think that the machinic phyla are agents productive of being. They make us enter into what I call an ontological heterogenesis. . . . The whole question is knowing how the enunciators of technology, including biological, aesthetic, theoretical, machines, etc., are assembled, of refocusing the purpose of human activities on the production of subjectivity or collective assemblages of subjectivity. (Guattari 2011, 50)

Biological, aesthetic and we might add, *cerebral machines* are constitutive parts of the production of subjectivity, rather than its “other.”

Yet perhaps the suspicion towards cognitivism is not just dogmatic, 1950s humanist Marxism, even if it has its “knee-jerk” moments. We can see this if we now turn to a new case, that of the emergent but already popular disciplines of neuronormativity. If we seek to achieve some critical distance towards these disciplines, it does not mean we are reverting to the anti-naturalism I have discussed above. That is, we are no longer in a 1980s-style opposition between humanists like Ricoeur or Habermas, and neuroscientists/

5 On the anecdotal level, I recall some people warning the Multitudes mailing list in the early 2000s that I, the moderator, was a danger (perhaps a RAND Corporation agent?) because I was participating in a meeting on *brains!*

6 Those who attended the *Psychopathologies of Cognitive Capitalism* conference at the ICI in Berlin in March 2013 could hear Maurizio Lazzarato’s denunciation of “cognitivism” and “science.”

propagandists like Changeux (see e.g., Changeux and Ricoeur 2002); we are now faced with the rise of the “neuro”-disciplines.

Neurohumanities and Neuronormativity

The prefix *neuro-* has become ubiquitous in numerous scientific and loosely scientific disciplines, offering as it does a surplus of concrete, supposedly experimentally substantiated *brain explanations* for various hotly debated phenomena (from punishment and free will to gender and economic decision-making). But as Jan De Vos has observed, this trend has led to a doubly unfortunate effect: the weakening of the relation of any of these projects to actual neuroscience, and the weakening of the discipline of which they are the “neuro” version (De Vos 2014; see also Ortega and Vidal 2011). De Vos quotes Matthew Taylor, a British Labour Party activist and government adviser under Tony Blair, who claimed that insights from neurological research offered a more solid base “than previous attempts to move beyond left and right” (Taylor 2009). To the 1980s-type fascination with “my brain is my self,” the last decade has responded with a particularly vacuous version of a social turn, conveyed in a variety of expressions, from “neurocapitalism” and “neuro-politics” to the possibility of neuro-enhanced individuals possessing a “neuro-competitive advantage” (Lynch 2004; Schmitz 2014).

One problem would be the potentially illusory character of such promised developments. But another problem is in a sense the exact opposite, namely, if neuro-enhancement is real, what about “the freedom to remain unenhanced” in a context where schools, in a country we don’t need to name, are coercing parents to medicate their children for attention dysfunction (Farah 2005, 37)? Or, to mention a different example, treatments for dementia will most likely lead to drugs that increase mnemonic recollection or recall in normal brains as well: would using this drug cross an ethical line from acceptable medical treatments to unacceptable cognitive enhancements if given to members of the general population (Bickle and Hardcastle 2012)? An even stronger embrace of “neurolaw” is, for instance, in a recent essay on “The significance of psychopaths for ethical and legal reasoning” by Hirstein and Sifferd (2014). If positron emission tomography (PET) studies have already shown that some convicted murderers have significantly attenuated functioning in their prefrontal cortex (a region known to be involved in cognitive control and planning), it is an open book for jurists to plead attenuated responsibility in terms of prior cerebral dispositions. But they take the reasoning one step further, focusing on the specific case of psychopaths and their diminished sense of moral empathy or responsibility. Hirstein and Sifferd effectively argue that the courts need to be practicing “neurolaw” in order to monitor psychopathic prisoners more closely. Somewhere here there is also the danger of so-called *brain-realism*. As per Dumit (2003, see also De Vos ms. and Schmitz 2014), our

society seems to place increased weight on brain data compared with other kinds of data. A legal concern is that brain scans and other pieces of such information will somehow trump other evidence in legal proceedings (Gordijn and Giordano 2010, discussed in Bickle and Hardcastle 2012).

So, thinking back to my embracing answer “both!” at the beginning to the question: emancipatory materialism or handing ourselves over to men or robots in white coats? Must this “both!” bear the combined masks of the neuro-adviser to Tony Blair and that of the philosophers recommending that courts practice “neurolaw”? As you may guess, my answer is “no,” or rather “niet,” with Soviet accent.

Two Materialisms = Two Brain Theories

Brains are culturally sedimented, permeated in their material architecture by our culture, history, and social organization; and this sedimentation is itself reflected in cortical architecture, as first clearly argued perhaps by the brilliant Soviet neuropsychologist Lev Vygotsky in the early twentieth century. A major figure in fields including social psychology, developmental psychology and a kind of heretical Marxism (but one not afraid to invoke the brain), Vygotsky strongly emphasized the embeddedness of the brain in the social world, arguing that there may even be evidence of consequences in our central nervous system derived from early social interaction, so that past experience is embodied in synaptic modifications. As his younger collaborator Alexander Luria put it, “Social history ties the knots that produce new correlations between certain zones of the cerebral cortex” (Luria 2002, 22).⁷ Less dramatically stated, in a recent summary by the cognitive archaeologist Lambros Malafouris: “Our minds and brains are (potentially) subject to constant change and alteration caused by our ordinary developmental engagement with cultural practices and the material world” (Malafouris 2010): a good definition of cultural-cerebral plasticity. Notice that this is materialism *sensu stricto*, as it is a description of the properties of brains; but it is not on the restrictively naturalist side of the Churchland-type neurophilosophical program (naturalism is a fairly open-ended set of programs, some of which are more open onto the social than others). In this more restrictive picture, naturalism begins to resemble scientism, in the sense that the promise is made for science to replace philosophy:

It would seem that the long reign of the philosopher as the professional in charge of the mind-body problem is finally coming to its end. Just as has happened in the lifetime of most of us in the case of the origins of the universe which used to be a theological problem and is now an astronomical

7 Iriki 2009 is a recent comparable illustration of this.

one, so the mind-body problem is about to pass from the grasp of the philosopher into that of the neuropsychologist. (Place 1997, 16)

Instead, the mind-brain materialism of Vygotsky is both less passive and less mechanistic. For him, "History, changing the human type, depends on the cortex; the new socialist man will be created through the cortex; upbringing is in general an influence upon the cortex."⁸ In this sense it is not a *scientism* or a denial of the symbolic and valuative dimensions of life. Following the helpful and suggestive response of John Sutton and Lyn Tribble to Hawkes' claims that materialism will destroy the symbolic, valuative, representational content in literature, materialism need not claim that "only matter exists," but that it is instead "firmly pluralist" in its ontologies.

Even if all the things that exist supervene on or are realized in matter, the materialist can still ascribe full-blown reality to tables and trees and tendons and toenails and tangos and tendencies"; an account including the brain need not exclude "memories, affects, beliefs, imaginings, dreams, decisions, and the whole array of psychological phenomena of interest to literary, cultural, and historical theorists. (Sutton and Tribble 2011)

The materialism of the "cultured brain" (as in Vygotsky or recent work in cognitive archaeology on tools and cognition, Iriki 2009) is very much of this sort: it integrates the brain and the affects, cerebral architecture, and our aptitude to produce fictions, etc. But notice that it is not enough to rebut these visions of a cold, dead materialism seizing living value, sentiment and meaning in its embrace and reducing them to piles of inert matter. For just as there is bad neuronormativity and a more positive sense of the social brain, we must be careful to separate the cultured brain concept from "neuro-aesthetics" which claims to integrate materialism, brain science and art but in the flattest way:

I picture a future for writing that dispenses with mystery wherever it can, that embraces the astounding strides in thought-organ research. Ideally, a future where neuroimaging both miniaturizes and becomes widespread, augmenting the craft of authors, critics, agents and publishing houses. (Walter 2012)

Note that I have slipped into discussion of forms of materialism (and their relation to brains), perhaps unconsciously adopting the posture of the philosopher. A different but complementary way of evaluating the more restrictive version of the neurophilosophical claims would be to look at precisely their *twenty-first century* outcomes, namely, claims from cognitive neuroscience and its extensions to deal with new areas like ethics, the law and the rest of

8 Vygotsky, *Pedologija Podrotska*. Moscow, 1929. Quoted in van der Veer and Valsiner 1991, 320. Further discussion in Wolfe 2010.

“neurohumanities.” This is what “critical neuroscience” does (see Choudhury and Slaby 2012).

As its name indicates, the critical neuroscience program aims in part to criticize current developments, particularly in cognitive neuroscience (Choudhury, Nagel, and Slaby 2009, 73). This can include the already-familiar social critique of our fascination with brain imaging (fMRI, etc.), the newer critique of “brain-centric” explanations of personhood, agency, and moral life, and also, scientifically informed challenges to exaggerated, perhaps even ideological reports of neuroscientific findings in popular media (including in the neuropolitical sphere, as discussed below), but also in fields such as the “neurohumanities.” Just as we are often confronted with bogus neuroscientific explanations in political decision-making or religious belief, similarly, certain current forms of neuro-aesthetic discourse will seek to augment literary scholarship by telling us that in reading literary prose, “the line ‘he had leathery hands’ has just stimulated your sensory cortex in a way ‘he had rough hands’ can never hope to” (Walter 2012).

Conclusion

We have witnessed a series of tensions, most classically between a kind of Marx-Heidegger humanism and a purported brain science, and more interestingly, between two visions of socially embedded, plastic brains, namely that of Tony Blair’s advisor versus the Vygotskian “socialist cortex,” i.e., the brain as potential Communist *caisse de résonance*. Similar but not identical to the latter opposition would be that between current discourses of neuronormativity, and the Vygotsky-Negri line in which brain science is not merely facilitating a state of socio-political status quo, but is potentially destabilizing.

The same applies to the opposition between types of materialism, in which the latter, more plastic variety also embraces “cultured brain” materialism. One can think of the Baldwin effect (in which cultural/linguistic evolution combines with Darwinian evolution). The Baldwin effect is very close, in fact, to the promise of the social brain, namely, that “the human cerebral cortex [is] an organ of civilization in which are hidden boundless possibilities” (Luria 2002, 22)⁹ and of course also to Deleuze’s “neuroaesthetic” vision in which “creating new circuits in art means creating them in the brain” (1995, 60). This Baldwin-Vygotsky-Deleuze vision is tantamount to saying, to use Negri’s words, that “*Geist* is the brain.” Negri is deliberately being provocative with regard to the

9 Luria is glossing on Vygotsky (1997), whose last, posthumously published work, “Psychology and the Localization of Mental Functions” explicitly aimed to investigate the functional organization of the brain as the organ of consciousness (Luria 2002, 23). The development of new “functional organs” occurs through the development of new *functional systems*, which is a means for the unlimited development of cerebral activity (Luria 2002 19, 22).

German “hermeneutical” tradition, although his interests lie less in the realm of the social brain, and more towards a politics of affects (Negri 1995, 98). That properties of *Geist* such as its interpretive capacity, its social and intersubjective dimension, are in fact properties of the brain means—and I wish to insist on this point—that these are not just accounts of *interaction* between two *distinct* entities or fields of activity (e.g., brain and society, brain and symbolic relations, nature and freedom, etc.), nor an insistence that what matters is strictly the world of language in which we live, irreducible to the brain understood as a passive machine.

A question left unspoken, but somehow present here, is: does the “social brain” materialist have to grant special ontological status to the brain? Does she have to hold, in the terms of “brain theorists” Thomas Metzinger and Vittorio Gallese (2003, 549) that “the brain possesses an ontology too”? In the sense that, just as a theorist of cultural plasticity integrates more levels of analysis than a theorist of plasticity of the neural networks of the young rat, similarly, the social-brain materialist might allow for a richer account of what is specific about the brain in a materialist universe, compared to a mechanistic materialist or other, flatter forms of ontology, where there can be no “special zones.” For materialism *sensu* the identity theorist Place (1997) or his colleague Smart (1959), the brain does not have an ontology. There is physics, and anything above (both biology and neuroscience) is like a special kind of radio engineering (Smart 1959, 142). In contrast, in Sutton’s (2011) fluidity of animal spirits or Diderot’s description of the brain as “the book which reads itself,” it does. But how can materialism maintain that the brain has an ontology without reintroducing “kingdoms within kingdoms” (in Spinoza’s celebrated way of describing the belief he challenged, that there were special laws and properties of human nature, different from the laws of nature as a whole)? One eloquent statement of how an interest in such plasticity can support an occasionally excessive claim for a kind of special ontological status is Victoria Pitts-Taylor’s critique of such a “wonder tissue” vision of the brain, as transcendental *potentia* or biopolitical monster (to use a phrase of Negri’s):

The brain not only appears to us (through neuroscientific revelations) to be ontologically open to shaping, but (if the theory is right) it is always already actively shaped and shaping. Thus plasticity cannot be seen as an ontological condition captured, or not, by capital, or as a biological fact to be freed from social and cultural ones. (Pitts-Taylor 2010, 648)¹⁰

- 10 Pitts-Taylor’s more general observation about the appeal of the concept of plasticity is worth citing: “For a number of scholars in a range of fields, plasticity offers the possibility of taking up the biological matter of the body while defying biological determinism. For sociologists of the body and medicine who have been looking for ways to overcome the limitations of social constructionism, brain plasticity appears to present the material body in a way that opens up, rather than closes down, sociocultural accounts of embodied subjectivity. In psychology, plasticity may offer those opposed to materialist views

If we over-ontologise the brain in order to not be mystical dualists or knee-jerk anti-scientists, we may also run the risk of reconfiguring humanity as just “a cerebral crystallization” (Deleuze and Guattari 1991, 197),¹¹ not unlike the way recent continental mystagogies of the brain in which “the frontier between the empirical and the transcendental is “deconstructed” within the materiality of the brain” (Williams 2013).

The other remaining question, which I have mentioned several times, is: if brain and politics are not two opposed spheres, does this have an emancipatory potential? The brain’s *potentia* against the rule-concept of *potestas* (the immanent and constitutive essence of a living being that desires what is good for its being, versus power as the transcendent power of command assumed by rulers). In similar tones Pasquinelli (2014, 298) approvingly cites Metzinger’s neuropedagogy and Consciousness Revolution as the “response of contemporary living labor to the regime of cognitive capitalism.” In fact, I like the sobering way Lazzarato puts it: art and culture are “neither more nor less integrated” into the society of control and security than any other activity, and they have “the same potential and ambiguities as any other activity” (2008, 174). There is little to be gained by investing either a substance (brain, frontal cortex, organism) or a potentiality with an absolute *saving power*. This, however, does not change the way in which a Spinozist politics of brain and affects (Wolfe 2014) is an improvement over those planifications which lay out a blueprint for action, with a hierarchy of actors assigned to their unmoving roles, *à la* DIAMAT and the dictatorship of the proletariat.

So, again: navigating between the Charybdis of apolitical neuronormativity, where Churchland becomes Philip K. Dick (. . . neurolegal attempts to identify psychopaths before they commit crimes), and the Scylla of comfortable Marxist anti-naturalism, I find support in Negri’s provocative affirmation, *Geist* is the brain. But which brain? Neither the brain of forceps or MRI-wielding “men in white coats,” nor the brain of the bad neuro-aesthetic theorization of the experience of reading literary prose, which we saw with Walter above.

Against static materialism I oppose the combined fervor of the Bolshevik invocation of the socialist cortex—as if, contrary to present, tedious attacks on the “dangerous naturalism” of thinkers like Virno, the true radical Marxism

of both normative development and psychic suffering a way to account for physiological aspects of both without endorsing evolutionary or hard-wired views. For postmodernists, poststructuralists, and others interested not only in displacing the liberal subject but also in productive alternatives, plasticity seems to offer positive chaos, creativity, and multisubjectivity. For those pursuing posthumanism at various levels, plasticity renders the world as an infinite source of “wideware” for the brain, and positions the individual brain as inherently connected to others—things, artifacts, other brains” (Pitts-Taylor 2010, 647).

11 In response to the phenomenologist Erwin Straus’s “humanist” statement that “It is man who thinks, not the brain” (in Straus 1935, 183).

was in the brain (Wolfe 2010, Pasquinelli 2014)—and Negri’s incantatory assertion that “the brain is the biopolitical monster” (cit. in Wolfe 2008). Granted, we might take a dose of deflationary realism towards such utopias; yet they are infinitely more sympathetic than the melancholy cynicism of the *déraciné* architecture theorists, the gleeful naïveté of metaphysicians of the prosthesis, or (again) the reactive, fearful anti-naturalisms, anti-cerebralisms of some of our fellow-travelers.

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