

2. Neuroscience as Applied Hermeneutics – Towards a Critical Neuroscience of Political Theory

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In the current academic climate, there is no shortage of discourses proclaiming a veritable neurorevolution: that new insights into the functioning of the human brain will lead not only to novel possibilities of technoscientific intervention, but also to a radical transformation of our sense of what it is to be human in general.¹ More striking still is the enthusiastic appropriation of this new neuroscientific wisdom by formerly somewhat anti-scientific disciplines, from art history and theology to literary studies (Vidal 2009; Ortega 2009). Political theory would seem no exception; here too one begins to wonder whether in this moment of neuroscientific progress one should not “go neurobiological”: the lure of a shiny new neuro-prefixed discipline to accompany those already out there – neuro-economics, neuro-education, neuro-law, neuro-aesthetics, neuro-literary-criticism, and so on. Will political theory become neuropolitics?

Only time will tell, of course. An assessment of the value of jumping on the neuroscientific bandwagon, and a judgment about whether it is indeed time to trade in established principles and disciplinary discourses for this new neuroscientific wisdom requires a closer reading of neuroscience itself, its current status as a scientific discipline, its social standing and its situatedness. In the following chapter, we are less concerned with the more naïve and undifferentiated appropriations of neuroscience, characteristic of some divisions of the humanities in recent times (for a valuable assessment in the field of political theory, see Gunnell 2007). We will only hint at the tendencies towards depoliticization of discourses

revolving around human nature (Cooter 2007; Forman 2010) and towards phantasies of technological quick fixes in matters of social life and suffering (Elliott 2004). Instead, we will explore what political theory does have to gain by positioning itself in relation to the contemporary neurosciences. Importantly, however, this positioning will not amount to an uncritical acceptance of neuroscientific “results.” Cognitive neuroscience, at its current stage as a developing discipline focusing on what is likely the most complex object of investigation imaginable, is not at the “result stage” in any meaningful sense of the term. At present, and for the foreseeable future, the field has no theory about how the human brain actually functions, it is not fully clear even to neuroscientists what their tools actually measure, and whether their current theoretical and conceptual constructs will survive the next wave of technological and/or methodological innovation. These issues have been acknowledged and discussed by philosophers (Klein 2010a; 2010b; Kahane and Shakel 2010), psychologists (Uttal 2001), anthropologists (Dumit 2004), interdisciplinary researchers (Hanson and Bunzl, 2010) and, of course, neuroscientists themselves (Junghöfer, Peyk, Fleisch, and Schupp 2006; Logothetis 2008; Vul, Harris, Winkielmann and Pashler 2009).

In light of this, and in light of the discursive realities surrounding the field, we will argue that human-level neuroscience turns out to be constitutively shot-through with *hermeneutic* elements – arguably, it is even to a certain degree itself an interpretive discipline. Being technologically enhanced and biologically framed, neuroscience is of course unlike traditional interpretive disciplines. But when it is dealing with relevant human traits on the personal or mental level, neuroscience is *constructing interpretations* – rich narrative framings of certain aspects of human mental life, personhood, and human traits, habits, functions and malfunctions; interpersonal interactions and, healthy and diseased states. These narratives often have a strong tendency towards anthropological generalization (the “empathic animal;”

“daydreamers” etc.), are crucially fed by several meta-narratives or background stories such as evolutionary theory (Young, *in press*), forms of materialism or determinism, and are regularly endowed with an apparently robust, often tacitly normative, authority (Hartmann, *in press*).² In this way, neuroscience is not, after all, so radically different from philosophy and other broadly intelligible discourses about cultural meaning. To its own advantage (but with ambivalent consequences outside its immediate sphere of influence), neuroscience is a powerful discourse-orienter and –amplifier in today's cultural climate. Thanks to its prestige as the allegedly hard science of human reality, this is especially the case in modern societies where the sciences have assumed a central role among the life-orienting sources of meaning. Neuroscience's stories catch on as they seem to epitomize a robust form of objectivity³ – increasingly constituting the backbone to emerging neuropolicies and the evidence base for new forms of self-help.

While the acknowledgement of the de facto hermeneutic character of much of current neuroscience might serve as the grounds for a substantial critique of the field, we will try to give it a constructive twist. Approaching man, the “self-interpreting animal” (Taylor 1977/1985), by means of hermeneutics can yield valuable results, and when interpretations are aligned with innovative experimental methods, technological measurement devices, and however vaguely, linked to a more robust and sure-footed biology, this *might* open up a space where human self-understanding at large will benefit, even in the absence, for the time being, of firmly established scientific results and despite sometimes distorted disciplinary self-understandings.⁴ In light of this, political theory's potential alliance with parts of the neuro-enterprise might turn out to be fruitful after all. It is this perspective we deem worth exploring, albeit with a critical stance towards the social, cultural, political, and academic embracing of neuroscience and many of its material and discursive corollaries. Such a stance

goes by the name of “critical neuroscience” (see Choudhury and Slaby *in press*). We will outline this project's motivation and agenda in the first part of our paper.

To provide a preview of what is to come, let us first focus on politics and briefly relate what we think neuroscience could offer this field. The common pattern behind many appropriations of neuroscience by political scientists and theorists is that neuroscience will deliver robust empirical insights into the psychological functioning of human beings, and that these insights will underwrite specific theoretical articulations of our political preferences, capabilities and liabilities, while disconfirming other such articulations. The result, it is assumed, will be an empirically grounded, scientifically established political theory and political psychology. This common way of thinking, however, mischaracterizes the nature and current status of neuroscientific theorizing. Given the statistical reasoning and indirect measures of, for example, neuroimaging, there are no established and generalizable results that could support more than broad tendencies. Furthermore, the theories of naturalistic and scientific approaches to human nature are in every respect as contestable as theories in the humanities and social sciences (see Gunnell 2007). Most of the distortions occur when the alleged results travel beyond laboratories and scientific journals towards audiences eager to re-present them (and sometimes because of the representations of neuroscientists themselves, see Gonon, Bezard and Boraud 2011). It is in the appropriations of commentators and journalists where the preliminary and interpretive character of neuroscientific results gets replaced by rhetoric of indisputability and objectivity beyond doubt (Dumit 2004; Joyce 2008).

The hermeneutic character of cognitive (neuro-)science has been discussed by Gallagher

(2004). While acknowledging the distinction between the method of explanation (*Erklärung*) and understanding (*Verstehen*), he argues that both cognitive science and hermeneutics can be linked through their subject areas (broadly construed). Gallagher first attempts to show that hermeneutical and neuroscientific theories agree on the assumption that human beings recognize objects via cognitive schemas or interpretive frameworks. He goes on to claim that hermeneutics can inform scientific models of how humans practically cope with problems in situations where solutions are highly context-dependent. When observing the situation from the opposite direction, however, evidence about the mirror neuron system as an explanation for elementary understanding of others (Rizzolatti, Fadiga, Gallese and Fogassi 1996; Gallese and Goldman 1998; Rizzolatti, Fogassi and Gallese 2000; Gallese 2001; 2005) can replace the outdated hermeneutical conception of a “divinatory power” that allows humans to detect and complete intentions of others. However, while Gallagher is convincingly exploring the fruitful connection of these two methods, his characterization of the hermeneutic character of science itself assumes that “scientists make interpretations, and their interpretations are biased in a very productive way by the scientific tradition to which they belong, and the specific kinds of questions they ask” (*ibid.*: 165). There are indeed good examples for the intra-disciplinary hermeneutic elements of neuroscience Gallagher is concerned with. They include “ambiguous signals” of neuronal mass action measured with fMRI technology (Logothetis 2008: 874), the selection bias concerning brain areas that have already been analyzed (Kriegeskorte, Simmons, Bellgowan, and Baker 2009) and the application of traditional hermeneutics to research on imitation in infants and animals (Keestra 2008). But such a construal fails to acknowledge that neuroscientists studying the human brain are biased also by the cultural, social and political tradition they are embedded in. Since these biases often go unnoticed by neuroscientists themselves, who are—as Gallagher rightly points out—concerned with their own scientific tradition, it is necessary that researchers make explicit in

which wider institutional and political framework their science is situated.⁵ Only when such an explication has taken place, the relation between neuroscience and the humanities—or political theory in particular—can be turned into a two-way street: Instead of explaining political agendas and political behavior with the wiring of an apolitical experimental brain, one can establish a neuroscientifically informed (political) theory of a socially extended and invaded mind (Gallagher and Crisafi 2009; Gallagher 2011; Protevi 2011), which—ideally—reflects and instrumentalizes the implicit politics of naturalizing social processes.

Against this background, we shall assess in the second part of this chapter some of the most challenging work in the field of “neuropolitics”—most notably William E. Connolly’s 2002 book that goes by this very title. In Connolly’s book, the appeals to neuroscience are not much more than fancy decoration, doing very little real work in relation to the arguments actually brought forth. We contrast these invocations of the modish prefix “neuro”, that proclaim to (allegedly) break with (allegedly) time-honored, intellectualist positions, with our own account of a critical neuroscience of political theory. While drawing on some of the ideas outlined in John Protevi’s book *Political Affect*, we develop a two-level critique of hermeneutic elements in neuroscience, opening up new avenues for intervention. On the intra-disciplinary level, we will criticize the neglect, within standard interpretations of neuroscientific results, of the social and political influences upon cognitive development. Instead, we will point out that these interpretations are increasingly used as biologized facts about social behavior without critical awareness of the political norms they reproduce in the wider society in which the research is embedded. By using neuroscientific results more strategically, political theory can gain a powerful tool to show how normative systems in different forms of society shape the cognitive and affective make-up of its members. Neuropolitics, as a normative endeavor of assessing varieties of political cohabitation, would

then employ brain research instrumentally instead of contributing to an unwarranted inflation of its discursive authority over all things impinging on our view of human nature.

Towards a critical neuroscience

Critical neuroscience attempts to open up a space for unconstrained inquiry into the current state and status of the cognitive, affective and social neurosciences—and in particular into these disciplines' real-world effects and into their various cultural, social and academic appropriations (Choudhury, Nagel and Slaby 2009; Choudhury and Slaby *in press*). This space of inquiry is itself inherently political by virtue of its cultural importance and contested nature of its subject matter. The projected form of inquiry must confront the ways in which personhood is framed within neuroscience, and the way in which neuroscience itself is enmeshed in and shaped by institutional systems, including the ongoing transformations of science and the university in general.

The concept of “critique”, as we use it, starts from the assumption that scientific inquiry into human reality has a tendency to mobilize, and subsequently anchor, specific values and often works in the service of interests that can easily shape construals of nature or naturalness. These notions of nature or of what counts as natural, whether referring to constructs of gender, mental disorder or human development, require unpacking. Without reflection on their histories and formative assumptions underlying them, they appear as self-evident, universal and above history, and are often seen as a form of normative facticity in their making claims upon us in everyday life: how to live healthily, work well, learn optimally, relax and organize one's relationships (see Hartmann, *in press*).⁶

Critical neuroscience is not motivated by the aim to undermine the epistemological validity of neuroscience or debunk the researchers' motives. Situated between neuroscience and the humanities, critical neuroscience uses a historical sensibility to analyze the claim that we are in the throes of a “neuro-revolution”. Investigating the historical and cultural contingencies of prime neuroscientific categories, the task is to analyze the ways in which, and conditions through which, behaviors and categories of people are biologically naturalized and subsequently mobilized. It considers how specific alleged “brain facts” are appropriated in various domains in society, starting with medicalized contexts of the West, but also using cross-national comparative methodology to understand the production and circulation of neuroscientific knowledge globally. Maintaining close engagement with neuroscience is on the one hand crucial for building accurately informed analyses of its societal implications, whilst on the other hand, providing a reflexive interface through which historical, anthropological, philosophical and sociological analysis can feed back and provide creative potential for experimental research in the laboratory.

Central to the project is the impetus to cultivate an increasing awareness of the factors that come together to stabilize scientific worldviews and create the impression of their inevitability. Furthermore, critical engagement in neuroscience can increase the complexity of behavioral phenomena (for example emotions, interaction, decision-making, mental disorders), and motivate scholars to enrich conceptual vocabularies of behavior and mental illness, keeping debates from being foreclosed by the belief that the ontologically most fundamental level of explanation is by default the most appropriate one (S. Mitchell 2009).

Contextualizing neuroscientific objects of inquiry – whether the neural basis of addiction, depression, sociality, lying or adolescent behaviors – can demonstrate how such alleged findings, whilst capturing an aspect of behavior in the world, are also held in place by a number of factors, co-produced by a collection of circumstances, social interests and institutions (Young 1995; Hacking 1999). These circumstances and interests are often quite systematically ignored in neuro-discourse (see, for example, Heinemann and Heinemann 2010).

However, a critical endeavor cannot stop at disengaged complexification. We share a sense of uneasiness with several scholars in the field of STS in particular (Cooter 2007; Mirowski and Sent 2008; Anderson 2009; Cooter and Stein 2010; Forman 2010) about a quite specific *depoliticization* of scholarship amidst the increasing commercialization of academia. In line with a broader cultural tendency favoring voluntarist conceptions of the “entrepreneurial self”, centered around ideas of “resources” and personal “capital” (such as social, emotional, or mental capital), there is a striking correspondence between scholarly discourse and economic imperatives and normative schemas (Fricke and Choudhury, 2011).⁷ Here, the hermeneutical character of much current human-level neuroscience becomes particularly clear: not only does neuroscience with remarkable ease absorb and integrate prevalent *Zeitgeist* themes (Malabou 2008; Karafyllis and Ulshöfer 2008; Slaby 2010), but some of the key metaphors used by neuroscientists also reflect the political climate they were established in, e.g.: the brain as a “thinking machine”, alluding to the new position of the intellectual in late 19th century industrialized society (Schaffer 1999), “hard-wiring” in the cold war era (Borck, *in press*), or “plasticity” in times of a more flexible capitalism (Hartmann, *in press*).

In view of these multifarious cultural infiltrations and exchanges, a more radical and openly political positioning is called for. Such a positioning has to begin with the acknowledgement that neuroscience, at least at present, is in large part itself engaged in the construction of interpretations of human affairs – for better and for worse. In light of this, we intend to reinvigorate a sense of the impact that larger social, political and economic dynamics have on the shape of academic and scientific culture.

Neuroscience, society and personhood

Interestingly, in acknowledging the hermeneutic character of important strands of current cognitive and social neuroscience, we can concede a convergence in the analytical perspectives behind both neuroscience itself and certain reflexive, meta-scientific endeavors such as critical neuroscience. This common ground, we claim, is a historical ontology of subjectivity, personhood and human culture. This view understands the make-up of human beings to be in an important sense historically constituted – through processes of situated self-interpretation of human subjects in material settings and in relation to social structures and practices (Berger and Luckmann 1966; Taylor 1989; Foucault 1973; see also Brinkmann 2005; 2008). Properly spelled out, such a perspective will not break with a naturalistic understanding of the human world (Rouse 1996; 2002), thus allowing an alignment with robust first-order natural science.⁸

In particular, we follow Ian Hacking in the assumption that science, medicine, education, and other institutions and areas of social practice and policy are key contributors in the processes that create kinds of people through complex processes of “classificatory looping” (Hacking 1995; 1999). Classificatory terms come bundled with norms and expectations about the

objects collected under their scope, and objectifying an identity, stage of life, culture or behavior in those terms can interact with the experience of that which is classified. *Interactive kinds* are classifications robustly taken up into the self-understanding of those classified. These processes lead to the emergence of new practices, new alliances, new institutions that interact with the persons in question – in establishing and sustaining habits, thought patterns, forms of conduct and schemes of judgment. Classificatory looping is a circular interaction between the categories used to classify groups of people, these people’s behavior, attitudes and understanding of themselves in response to these classifications, and the modification of the original categories as a result of the classified subjects’ altered modes of conduct.

The idea that kinds of people are historically “made” through powerful classifications gains additional relevance when placed in the context of what Anthony Giddens has called *institutional reflexivity*: The routine incorporation of new knowledge into environments of organized action that are in this way constantly transformed and reorganized (cf. Giddens 1991: 243). Institutional reflexivity is a central working principle of institutions in late-modern societies, including, of course, science itself. Expert knowledge, variously mediated, interacts, in multiple settings and through complex feedback loops with the practices and self-understanding of subjects, to an extent that these interactions are no longer recognized as what they are and are taken as natural givens. It is well documented that the modern life sciences have been a crucial element in processes of this kind (Danziger 1990; Rose 1996; Richards 1996; Ward 2002).⁹

Increasingly, today, the neurosciences are entering into the loop, as the “new image of man” discourse becomes increasingly widespread, and a wealth of brain-based approaches exert

ever more influence upon medicine, education, advertising, recreation and also by influencing other domains of knowledge production as in the burgeoning neuro-disciplines from neuro-economics to neuro-theology or neuro-aesthetics.¹⁰ This goes along with an often enthusiastic reception of neuroscience within large swathes of the humanities and social sciences, documenting the scientific reformatting of discourses of human nature that is presently underway. Certainly, there is some danger in letting academic fields (such as political theory) submit too willingly and uncritically to the “seductive allure” of appeals to neuroscience. It would be false, however, to exclude neuroscience itself from such danger by claiming that the wider public just does not understand what real scientists do. Scientists themselves often display the tendency to finalize their own research prematurely or to stop critical reflection in order to serve the scarce attention of the medialized public with a never-ending series of new facts about the nature of humans and their brain.¹¹

While neuroscience is officially attempting to penetrate to the ultimate level of human functioning – the first nature of the central nervous system's organization and mode of functioning – it in fact participates, in concert with other actors and actants, in the construction of a powerful second nature: a conceptual, institutional and informational environment that breeds robust practices and institutions of subjectification – interpretations, practices and settings that “make up people” (Hacking 2002; Slaby 2010; Hartmann, *in press*). A central task for critical neuroscience is to make these construction processes explicit with the goal to subject them to critical scrutiny and assess their formative assumptions and underlying commitments. Although neuroscience is not the sole cause, driver or solution to a set of relevant social, cultural and political changes and problems, its growing power as a quasi-hegemonic interpretive scheme in human affairs certainly makes it to a target of special attention in the task of subjecting the current societal transformations to

reflexive critical scrutiny.

Importantly, Hacking's approach also helps to see how processes of classification can interact directly with the biology of personal traits and ways of being, rendering stark oppositions between the social/historical and the natural obsolete. Hacking helpfully speaks of "biolooping" (Hacking 1999: 123).¹² Biolooping is an inherently social and culturally mediated process, but one that nevertheless "goes deep". This process, however, is certainly disparate with problematizations that would myopically center on the (alleged) impacts or implications of neuroscience, on worrisome advances in what is known about the brain; and what is possible for future applications. Rather, biolooping is a key part of the complex processes of interaction between individual persons, social systems and institutions, mediated self-understandings and what is brought into public circulation as the "results" of the human sciences – in short, exactly those processes that have to be subjected to particular scrutiny as it is in and through them that the contours of our future lifeworlds are crucially shaped.¹³

On a slightly broader scale, ethnographic work by Margaret Lock provides further support and evidence for the need to collapse conventional dichotomies between the inside and outside of the human body and between the cultural and the biological more broadly. Her seminal study of the experience and physiological characteristics of menopause among Japanese and American women led her to the concept of "local biologies", a useful way to denote her finding that social context and culture can reach as deep as to directly refashion human biology (Lock 1993; Lock and Kaufert 2001; Lock and Nguyen 2010: 4). Lock found that the cultural differences in menopause/konenki runs deep, manifesting on biological, psychological and social levels. She argues that the different experiences of hot flushes were

not simply due to differences in cultural expectations in relation to the body, but down to the biological effects of culturally determined behaviors such as diet. This finding challenges the tendency in biological science to draw boundaries at the skin, and demonstrates instead the ongoing dialectic between biology and culture (Wexler 2006). Transcultural psychiatrist Laurence Kirmayer has extended these ideas to the brain and behavior through his concept of “cultural biology”, which understands culture as a biological category in the sense that human beings have evolved a “biological preparedness to acquire culture...through various forms of learning and...neural machinery” (Kirmayer 2006: 130). Lock’s and Kirmayer’s concepts of “local biologies” and “cultural biologies”, respectively, capture a notion of central importance to critical neuroscience: biology and culture are mutually constraining and co-constitutive, such that they are each conditions of the other’s determination and development.

Situating the brain and behavior in social and cultural contexts underscores the importance of examining recursive loops between neurobiological and social/cultural processes such as the way in which explanatory theories of illness and behavior themselves interact with the physiological processes involved. In a variety of ways, culture and local biologies can transform one another, exerting their influence on the way we understand ourselves, the way we experience mental and bodily phenomena and the way that this in turn shapes the corresponding biological processes. In a nutshell, there is no proper boundary between biological and social/cultural studies when it comes to specifically human traits and capacities (Fox Keller 2010).

With this theoretical and operative framework in place, we will now turn towards an assessment of recent work in the nascent field of “neuropolitics”. The aim is to point out the dangerous shortcomings of an uncritical stance towards neuroscience (as it is adopted

increasingly by scholars in the humanities), and to subsequently outline a more complex approach that construes the exchange between political thought and empirical science essentially as a two-way street.

Neuropolitics I: Anti-Intellectualism run wild

As an exemplar of recent work aligning political thinking with current work in neuroscience, we chose the seminal *Neuropolitics: Thinking, Culture, Speed* by acclaimed political theorist William Connolly. The book offers a multi-faceted political philosophy and cultural theory focused on the accelerating speed in late modern societies, undertaking to defend an ethos of pluralism against conservative, neo-romantic and fundamentalist opponents. An important strand in Connolly's study is the sketch of a theory of thought, broadly conceived – where “thought” is seen as a bundle of multi-layered, affect-imbued, technologically enhanced processes that originate “below the surface” of subjectively articulable consciousness. Notions such as “virtual memory”, “affective register” or “perceptual skill”, often combined with ideas from film theory and vividly illustrated by a wealth of examples, helpfully support what turns out to be a powerful narrative of embedded subjectivity under conditions of late modernity. Nietzsche, Bergson, Deleuze, Arendt, among others, emerge as heroes in the background, supplying unconventional ideas and suggesting various courses of argument.

Why has Connolly chosen to title his study “*Neuropolitics*”? Obviously, he includes at various places references to the brain sciences, broadly conceived: to Damasio's theory of somatic markers – emotional mechanisms that provide instant appraisals of imagined options or thought contents in the form of “gut feelings” (Damasio 1994; 1999); to Ramachandran's studies of hemilateral neglect and phantom limb pain that are believed to show how little

conscious access we have to processes of motor control, sensory feedback, and subliminal perception; and surely to Varela's neurobiological-cum-philosophical theory of the embodied mind which opposes intellectualist, computational and representational cognitive science (Varela, Thompson and Rosch 1991; Damasio 1994; 1999; Ramachandran and Blakeslee 1998). All these references and inclusions are intended to show “how biology is mixed differentially into every layer of human culture, even as it addresses the highest modes of intellectuality, artistry, creativity, freedom, and reflexivity of which the human animal is capable” (p. 62). But it is not very surprising that the work of Damasio, Varela or LeDoux connects to the “minor tradition of reflection” Connolly wants to continue (Lucretius, Nietzsche, James, Bergson and Merleau-Ponty would be exemplary here). Connolly has chosen some of the more *philosophically inclined* writers among today's neuroscientists – whose theories are broad-scale hermeneutical approaches towards aspects of human nature, sometimes more in the guise of truly scientific accounts (Damasio, Ramachandran), sometimes less so (Varela; see also Papoulias and Callard 2010: 33, for a similar observation). These theorists indeed connect – at times loosely, at times not so loosely – with parts of the minor intellectual tradition Connolly refers to. The real question is: How much actual work is done by strictly empirical neuroscience in these accounts, or rather: What makes these accounts interesting to scholars like Connolly?

Connolly's most original and most substantive points, as well as the overall spirit of his account, are derived from Nietzsche, supported by ideas from unconventional theorists in the philosophy of science (Prigogine, Stengers), not least also from film theory (Shaviro) and from his own interpretation of several mainstream movies. But since his adoptions from neuroscience resemble a rather general philosophy of embodiment, motor skills and extended cognition, it is striking to what extent the neuro-prefix functions as an organizing umbrella

that connects disparate strands of thought that share a certain spirit or rough tendency.¹⁴ Connolly wants to capture a *Zeitgeist*, where a “natural” link between neuroscience and technological progress, anti-intellectualism, fashionable mixtures of unconventional human science and avant-garde cultural theories is drawn. But the suggestive associations with neuroscience (perception, sensibility, the modulation of attention through visual media or affective traces in memory) concern mostly areas on which, to date, several humanities disciplines – and historical figures such as Bergson, James, certainly Nietzsche, and even Aristotle – have much more, and often more well worked out things to say than most empirical approaches in the neurosciences, although some of their proponents engage in this broader intellectual exchange within the humanities as well. Thus Connolly, and other neuro-enthusiasts among humanities scholars are honoring the neurosciences a good deal too much, they embrace it too readily, pre-maturely and uncritically as some sort of new “holy grail” of thought about human nature, generously giving credit before actual research findings have emerged, and surely before alleged findings have settled into well-founded explanatory theories.¹⁵ These scholars apparently do this in an over-ambitious attempt to leave behind certain outworn bastions of humanist thought. But why bother so much?

First, because these neuroscience-friendly anti-intellectualists commit a characteristic but highly consequential mistake: In their eager attempt to oppose intellectualism, they miss out on the crucial distinction between intellectualism and normativism. While the former is a misguided empirical position that indeed deserves scientifically informed opposition, the latter – properly construed – is a crucial pre-condition of rational thought, political theorizing and social critique. In fact, this is a pattern that recurs in the accounts of many naturalistically inclined thinkers: Authors putting forth normative conceptions of human affairs are treated as if they were advancing *empirical descriptions* of human nature. Not surprisingly, their

accounts will then seem hopelessly intellectualistic – as substituting lofty abstractions and idealist phantasies for the unruly, often rather unideal reality of human affairs. But of course a normative approach to human thought necessarily abstracts from much detail about the realities of real-life thought. After all, this is the point of a normative approach: It operates from a perspective in which rational considerations carry weight against descriptions that conflate the authority of rational argument with the brute forces of empirical regularity, accounts that collapse reasons into causes. Kant and his followers, for instance, are in this way often mistakenly criticized.¹⁶ Political theory, not least, thrives in the very space created by this distinction. In his resolute opposition to models of “deliberative democracy” (2002: 17), Connolly mischaracterizes the opponent – and thereby thoroughly simplifies what is a highly complex discursive situation.¹⁷

Connolly is certainly not alone here. For instance, fellow political theorist Leslie Paul Thiele, in his encompassing study of practical judgment, reiterates a thought pattern that is rife with the same type of error. The following appears in the context of a critique of his intellectualist opponents:

For the most part, moral judgment is not a process of deriving imperatives for action from abstract propositions. Rather, it arises through the internalization of social values and the immediate perception of their violations. This process takes place without much in the way of recourse to theory.

(Thiele 2006: 71)

But it is pretty obvious that nobody denies the first and nobody earnestly disagrees with the last sentence in this quotation. How real-life judgments are reached is secondary compared to the question of their justification. In blatant disregard this distinction, Thiele substitutes an empirical description and attempted explanation of processes of judgment for a normative

theory of justification. Not surprisingly, a caricaturized Kant appears throughout his book as the prototype opponent – a “reason-obsessed deontologist” as one reviewer helpfully put it.¹⁸ With all this, a false contrast is erected: those sufficiently aware of the unruly realities of “thought-in-the-wild” on the one side, and reason-obsessed intellectualists hopelessly out of step with the real nature of human judgment on the other. What is lost is the crucial discursive space in which the outcomes of those judgments or thought processes – no matter how they came about empirically – are assessed for their normative warrant.

Dropping the discursive space about the normative evaluation of judgments connects to the second danger we sense in the enthusiastic embrace of the neurosciences by influential scholars such as Connolly. In times of massive, and politically troublesome increase in institutional power of technoscientific disciplines at the expense of traditional humanities disciplines and minor academic subjects (many of which are acutely threatened with extinction)¹⁹, accounts, research programs, or at the very least, book titles like Connolly's, can function inadvertently like marketing campaigns, furthering the re-formatting of humanities discourses and departments, potentially leading to a situation where political theorists proper are no longer seen as experts in political affairs – or at least one in which neuropolitical theorists are raised to equal or higher footing by virtue of their authoritative (but in our opinion, non-substantive) prefix (likewise other humanities scholars in their respective areas of competence). This transfer of expertise and re-distribution of scholarly responsibilities is well under way already. Put in this context, a misnomer such as “Neuropolitics” (for a book that equally well could be named “Nietzschean Political Theory”) could turn out quite consequential. In the end, Connolly can easily be tapped as an advocate of something that he surely doesn't want to stand for. Critical neuroscience, in any case, will stubbornly resist developments that openly or unwittingly participate in these discursive and institutional

reformatting. Enough already with premature, over-enthusiastic, undifferentiated humanities appropriations of neurosciences and other techno-scientific or techno-medical disciplines – it is time to concretely engage neuroscience on the operative level.²⁰

Neuropolitics II: Towards a Critical Neuroscience of Political Theory

John Protevi's recent book *Political Affect. Connecting the Social and Somatic* (Protevi 2009), while sharing some of the “neuro-embracing spirit” that besets much of Connolly's account,²¹ marks a significant advance in being in many places conscious of the fact that neuroscience cannot just be uncritically adopted as it stands, but needs itself to be subjected to conceptual and political critique. The result is a synthetic approach that is grounded in an unconventional social ontology of the human world, breaking with problematic metaphysical and methodological assumptions (such as individualism or explanatory reductionism). Without being explicit about this, Protevi applies a kind of “parity principle” in dealing with scientific inclusions into broader themes of the traditional humanities. This procedure opens up new avenues for philosophical and political theories while simultaneously re-framing scientific discourses about human nature in order to steer clear of the predominant scientific meta-narratives (e.g., evolutionism, methodological individualism, anti-intellectualism) that often ideologically bias what will in the end be marketed as “scientific results”. Nevertheless Protevi makes clear that as a political theorist, one does nothing different than a self-critical scientist who carefully isolates parameters without taking his constructs for the ultimate nature of reality (2009: 21). Applying this self-critical stance to his own multidimensional perspective, Protevi ensures that the neuroscientific facts inside his assemblage are not mistaken to be the rock-bottom physical basis of political action. The specific template for this bidirectional discursive engagement is a brand of anti-subjectivist, nonscientistic

materialism adopted from Deleuze and Guattari: chiefly the idea that the traditional human subject – the self-conscious, rational and morally accountable individual – is not the appropriate unit of analysis but instead a resultant of social “fields”, subconscious somatic processes, and collective assemblages. In a slogan, Protevi operates “above, below, and alongside the subject” to examine the interlocking effects of social dynamics, somatic processes and constellations on the group level.²²

While Protevi shares some of Connolly’s anti-intellectualism, stemming from the embodied/embedded/extended approach of cognition with a deleuzian twist, his construal of current academic neuroscience is more concrete, although also in need of extension. The renunciation of the abstract and calculating capacities of the subject first of all coincides with the *affective turn* in social neuroscience (Papoulias and Callard 2010). If one furthermore takes seriously the idea that an organism (including unconscious processes like the body schema) only develops in a (social) environment, analyzing the effects societal practices have upon the ontogeny of individuals surpasses the task of finding the underlying correlates of normative political decisions (Protevi 2009: 104, 105). But unlike Thiele’s hasty abandonment of normativism in general, Protevi’s political theory remains normative on both the explicit and implicit hermeneutic levels of neuroscience we were discussing earlier. Concerning the explicit and intra-disciplinary hermeneutics, localizing the effects of socialization in the brain alone becomes unjustified if the basic level of description is the organism and its environment. Protevi describes this lack of justification when he bemoans how neuro-centrism brackets considerations about the endocrine system to describe the bodily reactions to extreme situations such as torture, war or mass panics (2009: 148). But even when extending the study of cognition beyond the skull/skin boundary, social neuroscience has to be aware of the fact that cognitive and affective capacities are distributed unequally in a

population, depending on the cultural practices different bodies are subjected to, such as gendering, racializing, or group classifications (religion, social class, nationality). This unequal distribution makes the comparison of individual results with a normalized mean highly problematic (Dumit 2004; Protevi 2011).

It is exactly this process of normalization that marks the transition from “is” to “ought”, or as we would frame it, from scientific norms of research to political and cultural norms of society in general (cf. Hacking 1990: 160-62). Instead of taking bio-looping to be some unalterable operation, we conceive it as an inherently open process that allows – and even calls for – deliberate (political) intervention.²³ Protevi provides an example of such an interventionist political theory, when he calls for the increase of self-organized power from below (*puissance*), an ethics oriented towards actively joyous political affect and a naturalized politics of empathic solidarity (Protevi 2009: 50 and 185). Although we are not able to fully discuss Protevi’s arguments, we nevertheless think that his account provides *one* norm deviating from neo-liberal tendencies of creating atomistic behavior. More importantly, these behaviors can be empirically tested by an affective neuroscience which is placed in a fully developed political context. Operating at the level of the relation between science and society, critical neuroscience of political theory is constantly challenging the classificatory effects of hermeneutic social neuroscience, by contrasting them with alternative forms of human cohabitation.²⁴ Thus neuropolitics would not risk to be reduced to a non-normative and biologized discourse about the “political first nature” of man, but instead show how neuroscience itself risks to merely reproduce pre-existing norms of society instead of critically assessing them (see Malabou 2008).

Although not always arranged explicitly as a two-level scientific-political hermeneutics,

Protevi's account still moves beyond a mere theoretical analysis of the role affection plays in political events. His success in escaping abstraction becomes especially clear where he develops different case studies as nonarbitrary, large-scale real-life experiments. In these, societies reveal their impact on and construal of politically affected subjects. Although the interactions constituting these events are political from the start, much of the politically relevant dynamics bypass the attention and articulation capacities of the conscious subject (by engaging subconscious registers of affect or sidestepping the individual on the meso-level of technological assemblage). All this is in turn used as input to a broadly critical stance that brings awareness to the multiplicity of tacit ways in which collective affect is regulated on several levels of contemporary social life. Quite persuasive in this regard is the "Hurricane Katrina" case study at the end of *Political Affect: A multi-dimensional analysis of collective affective dynamics concerning the delayed government rescue effort in New Orleans*. The chief contention is that historically grown and media-amplified forms of racialized fear led to a massively distorted, collectively sustained representation of the events in the flooded city, culminating in a military operation against alleged (but largely inexistent) "looters" instead of overdue government aid for flood victims.²⁵ Protevi's analysis draws wide circles around the 2004 incidents, taking readers back to the colonial and slave trade history and spanning geology, meteorology, oceanology, sociology, social history, political theory and media ecology – literally uniting sea, river, earth, sun, wind, city, technology, ideas, and people in this quite particular fateful constellation. This is philosophical concretion in its original sense of "*concrecere* – uniting, growing together": The messy substance of the human world is constituted by natural, historical, social, political trajectories convening at certain times and places in events or processes that are not captured neatly with the conceptual tools of single disciplines or disciplinary paradigms.²⁶

In analytical models such as this, an image of an 'undisciplined' critical inquiry comes to the fore, in an organic conjunction of the scientific and the political. It is here where the chances are best that neuroscience and other human sciences can be brought into a productive exchange with the other perspectives relevant to a critical political philosophy.

Conclusion

Beholding the increasing discursive and institutional power and media presence of all things neuro, it seems that, to date, there is substantially more politics in the “neuro” than there is “neuro” in politics. Neuroscience succeeds in creating political dynamics in its favor – chiefly by publicly launching themes and initiatives that capture the cultural imagination and that seem to push for novel ways of understanding key human affairs. Its stories catch on, and institutional reforms in fields such as education, health, security, law enforcement (and so on), are on the verge of being implemented. In light of this, there is first of all a need for a *political theory of the neurosciences*: an approach that analyzes the institutional impacts of brain-based approaches and disciplines within a changing social and academic landscape and places these trends in the broader context of current political, economic and cultural changes. On the other hand, political theory must not abstain from using neuroscientific results to craft truly inter-disciplinary, i.e. sufficiently complexified narratives about the embeddedness of political subjects in their environment. A habitualized critical attitude becomes crucial in dealing with the dangers and chances that lie in the development of human-level neuroscience. Where neuroscience attempts to speak of the brain non-metaphorically and demands to understand the mind “for what it is” (Eliasmith 2003; Borck, *in press*), it might promise to have direct access to all relevant features of human life, behavior and capacity. With this illusional outlook, it risks to be integrated into a totalitarian politics of de-

civilization, prevention and fear under the guise of a “secure” society (Hagner & Gehring 2006). However, if interpreted with an awareness of the complex mediations en route to their subject matters, neuroscientific findings could also be used to show that the entanglement of organism and environment prevents brain research from revealing the universal and timeless first nature of human beings. Choosing the second option, a critical neuroscience of political theory inverts the claim that “we are our brains” into the quest to intervene into the hermeneutical constructions of neuroscience itself, revealing that, to an equal measure, the brain is what we do with it – individually, at the group level and in society – rather than that there is an ultimate biological nature of political interaction.²⁷

The inverted perspective of critical neuroscience helps to reveal the political potential of recent studies from social psychology, which discuss, for example, the correlation between brain size and intelligence (and its unequal distribution among sex, race and occupational groups), or claim that atheists and liberals (in the US-American sense) are more intelligent since they have adapted to evolutionary novel values (Higgins, Peterson, Pihl and Lee 2007; Kanazawa 2010).²⁸ As these studies dispense with alternative, nonlinear conceptions of evolution (Gould 2002; Bredekamp 2005) and neglect any “variable, other than the brain, that can directly mediate cognitive ability” (Rushton and Ankney 1996: 31), they create the impression that society “naturally” evolved to have suitable places for people with different cognitive abilities. What is lost by this account is the discourse about the normative justification and appropriateness of various forms of political cohabitation: If it is true that the structure of the social environment influences the structure of cognition, how do we evaluate the current state of society in face of the cognitive capacities and pathologies it contributes to constituting? In order to resist the naturalization of social differences already existing, the task of the critical (neuro-)scientist has to be strategical: evaluate the consequences of

classificatory effects (the mediators between the brain and the social phenomenon in question, such as the unequal access to the resources of cognitive development among different social groups, see Farah et al., 2006), the interests possible funders would have in these results and open up a public debate that negotiates whether the effect of the phenomenon in question (such as the natural isomorphism of individual capacities and social structures) is desirable or not.

However, thus far, some of the most visible work that goes under the label “neuropolitics” is political only through its implicit depoliticization of discourses about human nature and by its bypassing of social and institutional settings, favoring individual traits and capacities. A truly political “neuropolitics” would look different from shallow appropriations of simplified theoretical accounts mixed up with equally dubious and selective borrowings from humanities traditions. Critical neuroscience responds by opening discursive spaces and contestations about the current vogue of the neuro-disciplines, analyzing the material settings, institutional environments and climates of opinion that facilitate these alliances. Our hope is that such a broadened interpretive endeavor will be able to align the creative potentials of various academic and scientific fields so that an open, balanced, resourceful and, most importantly, socially responsible mode of inquiry results – a mode of inquiry, moreover, that has surpassed for good the thoroughly inadequate and outdated family of distinctions such as nature/nurture, body/mind, and material/social.

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- ¹ The authors thank Max Stadler for his help in developing the initial outline of the paper and Frank Vander Valk for immensely helpful comments to an earlier draft.
- ² This tacit normative authority is certainly problematic, as it implicitly declares the mere *facticity* of the biological make-up of human organisms to be a normative standard governing matters of right and wrong in human affairs.
- ³ A rather simple argument lies behind this appeal: The brain is the organ most central to mind and thus personhood, and current neuroscience is in the business of discovering the brain's functioning principles. Thus neuroscience, more than any other discipline, will ultimately tell us what it is to be a person or to have a human mind. The two premises are roughly correct, but they leave much interpretive leeway and brush over mountains of complex conceptual, epistemological and methodological problems. Engaging these problems from the perspective of the relevant disciplines and debates would inevitably take nearly all of the excitement away from this argument and its conclusion, but the complications are usually left out of the (public) debates. For the organizing power of the idea that 'we are our brains', see Vidal, 2009.
- ⁴ We will not reiterate the usual critique of exaggerated objectivist assumptions at the base of the disciplinary self-understandings in many natural scientific disciplines. For more on this, see Choudhury & Slaby (*in press*).
- ⁵ An assessment of the socio-cultural and political periphery surrounding the intra-scientific hermeneutical circle is also missing in earlier work on the hermeneutics of experimental physics (Heelan 1988), medicine (Leder 1990) and natural science in general (Heelan 1983, 1998). The lack of such an explication may be of very recent origin, for the brain was taken to be the seat of social and cultural and social factors by eugenics-influenced neuroscience in the late 19th century (Hagner 1999). Of course nobody wants to return to such dubious connections of racial policy and science. But we suspect that this threat can emerge even faster from a misunderstood objectivism of 'unpolitical' research science.

⁶ In this, the approach of critical neuroscience does share some of the spirit with earlier Frankfurt School 'critical theory' (see the first two chapters in Choudhury & Slaby, in press, for more on this linkage).

⁷ How these postmodernist tendencies might have rendered explanations that invoke 'social influences' less common and less valued in STS is helpfully discussed by Forman (2010).

⁸ Joseph Rouse's pragmatist naturalism is in many ways inspirational to our approach, as it breaks with dominant assumptions that contrast nature in a dualistic manner either with mind, the social, or the normative. Instead, he articulates a position that steers completely clear of these oppositions. In this way, Rouse manages to incorporate important anti-naturalistic insights by authors such as Charles Taylor, John McDowell and Robert Brandom into a naturalistic outlook. Obviously, Foucault is an important inspiration to this line of thought, as can be seen in Rouse's early work (1987).

⁹ For a well-worked out reconstruction of the various approaches to the history of psychology in relation to a historical ontology of the psychological subject, see Brinkmann (2008).

¹⁰ Important analyses of the increasing somatization, biologization and medicalization of everyday life, including the emergent pattern of 'neurochemical selfhood' and a subsequent 'politics of life itself' have been provided by Nikolas Rose (e.g., 2007, 2010).

¹¹ The expression 'seductive allure of neuroscientific explanations' is used by Skolnik-Weisberg et.al. (2008) to explain their empirical findings of laypeople's astonishing readiness to take at face values even openly flawed and overly simplistic pseudo-scientific explanations that make appeals to the brain and brain science, in contrast to non-brain-centric pseudo-explanations that were much more readily rejected as flawed.

¹² Indeed, even Berger and Luckmann as sociological forerunners of the theory of *classificatory looping* were well aware of processes we would today call 'biolooping', see Berger & Luckmann (1966: 3).

¹³ We take it to be evident, by now, that 'socially constructed' in no way means 'not real' (Hacking 1999). Thus, invocations of construction processes are not meant to debunk particular ontological assumptions. As Latour

helpfully points out, to focus on construction and construction sites can well be understood as a specific manifestation of a realist attitude – however, an attitude that comes with an awareness of the fact that what is constructed might be constructed in a good or in a bad way and that there usually are *alternatives* to its current way of being (see Latour 2005, especially pp. 88-93).

¹⁴ The following is a typical passage that we hope conveys the spirit of the claims Connolly makes with regard to blending different perspectives, including the neurosciences: '...films, too, communicate affective energies to us, some of which pass below intellectual attention while still influencing emotions, judgments, and actions. These considerations encourage us to augment intellectualist models of thinking and culture with a perspective that appreciates the dense interweaving of genetic endowment, image, movement, sound, rhythm, smell, touch, technique, trauma, exercise, thinking, and sensibility. Thinking is implicated in body/brain/culture networks that extend well beyond the skin of the thinker.' (2002: 13)

¹⁵ Moreover, as Papoulias and Callard (2010) point out, cultural theorists, social scientists and scholars writing about politics and society often tend to *misconstrue* the content of the scientific theories they want to use for justifying their arguments. The authors criticize Connolly in particular for dispensing with the traditional conceptual and methodological framework of cultural and political theory to engage with the neurosciences in a one-way street manner. This situation is not exactly improved by the fact that 'there appear to be relatively few neuroscientists in the room interested in participating in those [interdisciplinary] 'conversations'' (ibid.: 38.).

¹⁶ Of course, this is not an all-or-nothing affair. Many normativists, Kant surely included, are also to some extent intellectualists and can be rightly criticized for this. Martha Nussbaum's overly cognitivist theory of emotion might be a case in point (Nussbaum 2001), also the less than well worked out empirical foundation of the early Habermas' theory of communicative rationality (Habermas 1985a; 1985b) which has been amended somewhat in later writings (See Habermas 2003; 2008). Kant, on the other hand, as a prime target of anti-intellectualist critique, is in many places quite explicit about the fact that man is very much 'made out of crooked timber' (most notably, of course, in various places of his *Anthropology*, see Kant, 1798/2006). In Connolly's perspective, however, the distinction between normativism and (descriptive) intellectualism has collapsed completely.

¹⁷ A powerful philosophical account that embraces much of the complexity in the dialectics between naturalism and normativism is Rouse, 2002.

¹⁸ Cf. Stohr, 2007. Her useful review brought the one-sidedness in Thiele's account to our attention.

¹⁹ See, e.g., Martin, 2000.

²⁰ As a political theorist, Connolly should be aware of the fact that invoking the brain in discourses about 'human nature' is inevitably always a political gesture: 'It is because in each individual the brain constitutes the controlling authority par excellence that all the descriptions we can give of it always participate, in one way or another, in political analysis' (Malabou 2008: 32).

²¹ For instance, when he calls his approach 'political physiology' (p. xi), Protevi seems to share some of the uncritical science-friendly spirit that drove Connolly to chose the title 'Neuropolitics'.

²² Needless to say, this particular theoretical positioning is contestable, but we can neglect this for present purposes. For instance, one question that should receive particular attention is whether the affect theory Protevi employs shares with other such approaches the problematic 'privileging of 'cellular time' ... [which] carries within it the implication that an afoundational biology also produces an afoundational subjectivity and a politics of the afoundational, an implication that cannot be sustained through the neuroscience that is brought into play' (Papoulias and Callard 2010: 41).

²³ Unfortunately, one effect of social constructivism was that philosophers and historians of science became content with describing the interaction of politics and science without defending the older normative view that both science and society should be open for strong alternatives: contrast Shapin & Schaffer (1985) with Polanyi (1946; 1951) or Feyerabend (1970; 1978). For a discussion of the epistemological and political shortcomings of social constructivism in cultural theory, compare Papoulias and Callard (2010): 34 and esp. footnote 8.

²⁴ Achieving this task does not require a complete normative system as the alternative to the current dominating forms of society. At least in the beginning it suffices to describe how 'cultural practices harm individuals'

(Protevi 2011), preventing them to live a good life, whereas the good is only something emerging from ethical negativism (Adorno 1951; Jaeggi 2005).

²⁵ Here, Judith Butler's notion of 'frames' is relevant – templates of experience and affect that selectively mobilize and distribute affective energies in a body politic, often orchestrated by the mass media, for instance in the context of representations of war (see Butler 2009). In the Hurricane Katrina case, those frames were apparently operative when incidental reports about alleged lootings – instead of encountering professional skepticism and caution on part of observers and journalists – were blown out of proportion to create the robust, widely publicized image of massive anarchy and black gang violence in the flooded city. Protevi dates some of the origins of these consequential frames back to violent slave revolts in 18th century Louisiana. See Protevi, 2009: 169-183.

²⁶ Another good example of a multi-level analysis of this kind and simultaneous methodological reflection about it is T. Mitchell (2002).

²⁷ We are here echoing Catherine Malabou's (2008) slogan. Obviously, it expresses a dynamic and temporal idea: Your brain *will become* what you do with it (i.e. with your life – a process that is of course inextricable from its various social, political, biological, geological etc. enabling conditions).

²⁸ Social psychology has just recently (re-)discovered its “biological basis,” claiming that the constitution of a single brain is highly dependent on its interaction with other brains. Exemplary for this new interdisciplinary research is the book *Neurosociology: The Nexus between Neuroscience and Social Psychology* by David D. Franks (Franks 2010). While being by far more explicit and informed about the methodological limitations of neuroscientific research, Franks shares many of the characteristics we criticized about Connolly's attempted neuralization of political theory: the preference of more philosophical neuroscientists (Damasio, Ramachandran), an anti-intellectualist notion of individuality (129f.), and a brain-centric definition of the nervous system (2). For further research on neurosociology see TenHouten (2005); Kalkhoff and Gregory (2008); Lovin and Winkielman (2010).

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