

**REVISITANDO O DEBATE
ENTRE NATURALISMO E NORMATIVIDADE:
NEUROCIÊNCIAS, NEUROFILOSOFIA E NEUROÉTICA**

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RECASTING THE NATURALISM–NORMATIVITY DEBATE:
NEUROSCIENCE, NEUROPHILOSOPHY, NEUROETHICS

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Resumo A partir da guinada neurocientífica em filosofia moral discuto em que sentido a neurofilosofia pode nos ajudar a reformular os problemas normativos de um programa naturalista de pesquisa ético-social, particularmente o problema da articulação entre a evolução propriamente biológica da espécie humana e a evolução social e histórica das sociedades e grupos sociais. Partindo de uma leitura crítica do naturalismo e das teorias normativas argumento que há um déficit neurofenomenológico no naturalismo (especialmente daqueles que seguem o programa da Epistemologia Naturalizada) e nas teorias normativas (particularmente na Teoria Crítica), e proponho uma versão do construtivismo social capaz de fazer convergir as teses diretrizes de modelos neurocientíficos e neurofilosóficos em autores como António Damásio e Jesse Prinz.

Palavras-chave: neurofilosofia, neurociências, naturalismo, normatividade, neuroética

Resumen: A partir del giro neurocientífico en filosofía moral, discuto el sentido en que la neurofilosofía puede ayudarnos a reformular los problemas normativos de un programa naturalista de investigación ético-social, particularmente el problema de la articulación entre la evolución propiamente biológica de la especie humana y la evolución social e histórica de las sociedades y grupos sociales. Partiendo de una lectura crítica del naturalismo y de las teorías normativas, argumento que existe un déficit neurofenomenológico en el naturalismo (especialmente en el de los que siguen el programa de la epistemología naturalizada) y en las teorías normativas (particularmente en la teoría crítica), y propongo una versión del constructivismo social capaz de hacer converger las tesis directrices de modelos neurocientíficos y neurofilosóficos en autores como António Damásio y Jesse Prinz.

Palabras clave: neurofilosofía, neurociencias, naturalismo, normatividade, neuroética

Abstract: Assuming that there is a "neuroscientific turn" in moral philosophy, I will be discussing in this paper how neurophilosophy

could shed light on the normative problems raised by a naturalistic project of ethical and social research, particularly related to the question of the articulation between the biological evolution of human species and the social and historical evolution of society and social groups. Taking a critical approach to naturalism and normative theories, I argue that there is a neurophenomenological deficit in naturalism (particularly in the versions of naturalism that follow the program of a naturalized epistemology) and in the normative theories (particularly in the critical theory) and I put forward a version of social constructivism that combines the neuroscientific and neurophilosophical models of Antonio Damasio and Jesse Prinz.

Key words: Neurophilosophy, neuroscience, naturalism, normativity, neuroethics

From a strictly philosophical standpoint, the naturalism-normativity debate dates back from the very beginnings of pre-Socratic inquiries into the nature (*phusis*) of the cosmos, in the 6th century BCE in ancient Greece, as the *phusikoi* ("natural thinkers") started breaking away from traditional, mythological accounts (theogonies and cosmogonies) and resorted to rational (*logos*) accounts of the origins and meaning of things in the world, human nature and activities. Thus Thales of Miletus thought that water was the first principle, while Anaximenes held that everything in the world was composed of air and Heraclitus taught that fire was the natural principle that accounted for all phenomena. Pythagoras –who taught that numbers were the fundamental principle of the *kosmos* (as opposed to the four elements) – was among these radical thinkers and was in effect the first one to call himself a philosopher, or lover of wisdom. The ancient Greeks were amazed at the plays of opposites (for instance, between rest and motion, day versus night, warm versus cold, wet versus dry), the changes of seasons (summer, fall, winter, spring), the repetition and the becoming of natural phenomena, such the growth of plants and animals, the observation of planets, stars, eclipses, comets, and celestial bodies, and their wonder led them to develop geometry, mathematics, astronomy, and especially philosophy. These "sciences" already existed (of course, in a pre-modern understanding of "science") but it was thanks to the development of philosophy that they were developed and became more and more sophisticated to account for natural phenomena. It is very interesting to recall that even the common-sense opposition between nature (*phusis*) and convention (*nomos*, law, custom), pointed to a rational ordering, structuring

principle (*logos*) to be found in the *kosmos* or to be created in the *polis*. Hence we may evoke Heraclitus' oft-quoted fragment 119, "*ethos anthropo daimon*" ("the character of a human being is its fate"), as correlated and complemented by his own intriguing remark that "nature loves to hide" ("*phusis kruptesthai philei*," fragment 123), in order to rescue the normative sense of pre-Socratic naturalism in the very unveiling of natural phenomena: the way of reasoning (*logos*) unveils the true structure of the world (Hadot, 2004).¹ Now, the way one takes such an unveiling as "natural," say, as opposed to a supernatural or divine revelation, is precisely what accounts for the posterior, ambiguous development of both naturalism and normativity after the emergence of metaphysics and the Judeo-Christian worldview that would prevail in the Western world until the rise of modern science.

Even though the oldest text carrying the word "brain" dates back from the 16th century BCE in Ancient Egypt and Hippocrates held, at Socrates' time, the belief that the brain was the seat of intelligence and thoughts, popular views of the heart as the center of human life were combined with Galen's theory of the brain and prevailed for some 1,500 years until the times of Descartes and early physiologists, paving the way for the modern understanding of the structure and function of the *cerebrum* (cortex), *cerebellum*, limbic and nervous systems, as they were fully explored toward the end of the 19th century and especially in the 20th century. The development of new technologies applied to the study of the brain and nervous system was decisive for the consolidation of neuroscience. No one questions nowadays that neuroscience and neurotechnologies have decisively contributed to new findings about human evolution, both biological and social, and its related self-understanding of human nature and the ethical, normative challenges for its future in a complex, fast-changing world. And yet it seems that the nature-culture dichotomy remains quite ubiquitous in most endeavors to account for a new way of approaching both nature and society. Usually naturalist takes on scientific matters

¹ Cf. Pierre Hadot, *Le Voile d'Isis. Essai sur l'histoire de l'idée de nature*. Paris, Gallimard, 2004. I have pursued my own takes on Greek naturalism in "The Worldhood of the World in Heidegger's Reading of Heraclitus," *Manuscrito* 19/1 (1996): p. 201-224.

tend to be opposed to value-laden, interpretive takes on normative issues, as if the natural-versus-human sciences were an inevitable dichotomy following the modern opposition between *Natur-* and *Geisteswissenschaften*. However, this cannot be simply reduced to opposing a naturalist take on facts to normative views of values. In effect, as Hilary Putnam put it felicitously, the fact-value dichotomy is, at bottom, not a distinction but a thesis, namely the thesis that ethics is not about matters of fact. In effect, all naturalist accounts have in common that they either deny that ethical sentences are expressions of judgments or thoughts that can be described as true and false, warranted and unwarranted, without some such rider as "in the relevant social world, or relative to the individual's desires and attitudes, or (if they do agree that there are such things as fully rational and objective ethical judgments) they give an account of the purpose (and sometimes of the content) of such judgments in nonethical terms." (Putnam, 2002, p. 134)

That bioethics blossomed at a time when medical technology was undergoing significant growth and developing unprecedented powers tends to be overlooked, although analytic and continental approaches to the philosophy of technology thematized life-saving potential, the development of artificial reproduction, the fast growth of specialist knowledge and all the new technical possibilities, including reproductive technologies, genetic engineering, and life-enhancing techniques, such as biotechnologies and pharmacological innovations. Bioethics from the very start has been an interdisciplinary study of ethics as *applied* to the life sciences and health sciences, focusing especially on *human* life and *human health* problems, always reminding us that Hippocrates and Socrates were both dealing, after all, with life and death issues. Although there is no consensus on the demarcation of disciplinary, ethical-philosophical research in biology – notably whether it should be confined to humans and technological innovations that relate to human life – bioethics has been the most important area of research in applied ethics, involving not only metaethical and normative problems, moral and political, social philosophy, but also specific issues that raise in medical ethics, neuroscience, cybernetics, law, economics, and religion. Campbell, Gillet, and Jones can thus offer us a comprehensive definition of medical ethics as "an applied branch of ethics or moral philosophy that attempts to unravel the

rights and wrongs of different areas of health care practice in the light of philosophical analysis" (Campbell, Gillet & Jones, 2006, p. 2). Hence, for many experts, medical ethics and bioethics are one and the same thing, as the former was conceived and developed within Jewish, Christian, and Islamic ethical traditions prior to the emergence of a post-secular, self-understanding of bioethics via-à-vis medical practices. Following the now classic, seminal work by Beauchamp and Childress, *Principles of Biomedical Ethics*, originally published in 1979 (already in its 6th edition), bioethicists set out to articulate a medical ethics in light of the four principles of respect for autonomy, non-maleficence, beneficence, and justice, as "these principles were argued to be mid-level principles mediating between high-level moral theory and low-level common morality, and they immediately became very popular in writings about medical ethics" (Beauchamp, 2003, p. 269). The descriptive and normative dimensions of theoretical insights and medical practices have been problematized as biotethics and medical ethics have been approached by different cultures and must meet the normative challenges of relativism. Hence, as Jonsen put it so felicitously, one must ask anew: "Is medical ethics a set of rules expressed in a written code promulgated by medical associations or is it a study of how the general principles of morality pertain to medical practice? Is it hardly ethics at all but instead a set of doctor-created conventions to preserve professional prestige and monopoly?" (Jonsen, 2000, p. 8). Neuroethics, as I have argued, deals with bioethical, moral problems both in abstract, theoretical terms (such as in metaethics and normative ethics, for instance, to define what is good and what selfhood is all about) and in practical, concrete terms (applied ethics), especially related and informed by the empirical sciences and recent findings in neuroscience.

Starting with the neuroscientific turn in moral and social philosophy, I should like to argue that neurophilosophy can help us today recast the normative problems of a naturalist research program in ethical, legal, social and political theories, particularly focusing on the problem of the relationship between the properly biological progress of our human species and the social and historical evolution of civilizations, societies, and social groups. From a purely naturalistic, physicalist standpoint, it seems that normativity would be inevitably undermined to the point of

justifying an eliminativism or dismissing any normative claims as ultimately reducible to descriptive premises or natural properties. On the other hand, from an irreducible normative viewpoint, naturalism will always come under attack by dualist, deontological or universalist models of moral reasoning, even without resorting to any essentialist, transcendental or absolutist presuppositions. Starting from a critical reading of both argumentative camps by detecting a neurophenomenological deficit in naturalism (especially following the Quinean program of an "Epistemology Naturalized") and in normative theories (particularly in Critical Theory), I should like to propose a mitigated version of social constructivism, so as to converge toward weak versions of naturalism and normativity as we find in neuroscientific and neurophilosophical contributions by authors such as Antonio Damasio and Jesse Prinz, in that both propose a reformulation of cognition in embodied, embedded, extended, enactive and affective terms (the so-called "4AE cognition"), with particular focus on their respective takes on the co-constitutive roles played by emotions, selfhood, and consciousness. Modern cognitive neuroscience emerged within developing, multidisciplinary efforts, initially combining research in neurophysiology and psychology at the turn of the 19th century leading up to the creation of the Society for Neuroscience in 1961 (Doty, 1987, chapter 18). The neuro boom and suspicious neuro hypes that dominate the present age were certainly preceded by serious, meticulous work in neurology and related fields in medicine and psychology until we saw the emergence of new interdisciplinary approaches in neurophilosophy and neuroethics, both terms first coined by Patricia Churchland in 1986 and 1989, respectively, (Churchland, 2011) – although political journalist William Safire, Chairman of the Charles A. Dana Foundation, had been mistakenly credited with this feat, as he situated neuroethics within bioethics and defined it as "the field of philosophy that discusses the rights and wrongs of the treatment of, or enhancement of, the human brain" (Illes, 2006, p. ix). Accordingly, neuroethics has come to the rescue of bioethics, as principlism either exerts a quasi-absolutist monopoly over all competing principles in complex decision-making processes or proves itself too vague to account for the normative grounds of autonomy, beneficence, nonmaleficence, and justice. (Marcum, 2008, p. 229). My contention here is that the

neuroscientific turn in both analytic philosophy and in continental, phenomenological traditions has not only contributed to fostering multidisciplinary research in normative ethics, bioethics, and experimental philosophy but has also shown how moral dilemmas, decision-making, and normative problems are to be tackled as our increasing use of neurotechnologies and technological innovations reveal the neural bases of our complex, social behavior. Since the consolidation of bioethics as a research field in the 1970s and 80s, neuroscience and cognitive science have been brought in so as to distinguish two major strands of neuroethics: (1) a bioethical reflection on new techniques, ethical principles, and innovations produced by neuroscience and (2) an approach to moral problems in the so-called philosophy of mind, moral psychology, and more recently psychology and social epistemology. To my mind, these two approaches are complementary and integrative for neuroethics, especially insofar as they bring together technological innovations and new understandings of human nature, not only in biological, neurological, and psychological terms but also socially and culturally. In effect, the neuroscientific turn in philosophy of mind is very similar to the rationalist, proto-empiricist turn operated by Hobbes's reading of Aristotle's treatise on the soul (*de anima*) as purely sensualistic psychology and correlate to physics *qua* first philosophy (*prima philosophia*), meaning that even metaphysics was to be radically revisited in our recasting of "human nature." It is also reminiscent of the Copernican revolution at Kant's times, itself preceded by Francis Bacon's critique of pure *a priori* deduction as an organon for scientific discovery or establishing the truth about natural things and natural phenomena, in what was then called "natural philosophy." As Bacon writes in the *Organon*, the very work cited by Kant in epigraph to the *Kritik der reinen Vernunft*:

Now my plan is as easy to describe as it is difficult to effect. For it is to establish degrees of certainty, take care of the sense by a kind of *reduction*, but to reject for the most part the work of the mind that follows upon sense; in fact I mean to open up and lay down a new and certain pathway *from the perceptions of the senses themselves to the mind*. (Bacon, 1996, p. 18 – may italics)

The neuroscientific turn leading to neurophilosophy and neuroethics has thus been correctly characterized as an empiricist

renaissance that accompanies the very recasting of naturalism and normativity following Quine's critique of traditional, dogmatic empiricism, simultaneously and independently paralleled by continental, phenomenological criticisms of logical positivism, especially in the so-called *Positivismusstreit* that Habermas inherited from the Adorno-Popper debate over the epistemology of social sciences (Littlefield & Johnson, 2012). We can easily situate the Platonic-Aristotelian divide in terms of *a priori* and *a posteriori* ways of dealing with the form-matter problem in teleological or causal explanations of observable natural phenomena, as the pre-modern understanding and practice of medicine and the empirical sciences were somehow related to philosophical quarrels and worldviews.

Now, as it has been pointed out, besides the sociocultural dimensions that remain problematic in 21st-century approaches to bioethics and neuroethics—hinging upon whether cultural relativism inevitably entails moral relativism, as already insinuated by Ruth Benedict in the 1930s—the particular problem of neurotechnologies and related issues of cell therapy and pharmacological and genetic engineering still face the normative challenges of a reasonable pluralism that ranges from liberal relativism to conservative, absolutist condemnation. *Grosso modo*, engineering ethics has focused on "the rules and standards governing the conduct of engineers in their roles as professionals" and has been established as a major field of applied ethics that "examines and sets the obligations by engineers to society, to their clients, and to the profession" (Fleddermann, 2004, p. 11). Beyond its specifically professional, ethical codifications, the social, normative implications of engineering technologies can be also recast so as to better understand what is ultimately at stake in the moral philosophy of technology and the naturalism-normativity debates regarding the use of biotechnologies, especially in neuroscience and cognitive sciences, such as neuroimaging and other recently developed neurotechnologies, including the recently developed ones in neural engineering (neuroengineering) and biomedical engineering. Thus some of the most basic, general principles formulated as the Fundamental Canons of the National Society of Professional Engineers Code of Ethics, such as "engineers shall hold paramount the safety, health and welfare of the public" or

that "engineers shall avoid deceptive acts" and that engineers are ultimately committed to "using their knowledge and skill for the enhancement of human welfare," presuppose a philosophical justification of moral judgments and principles, prior to concrete cases and decision-making situations of "all possible ethical dilemmas that an engineer might encounter in his or her career" (Rabins, <http://ethics.tamu.edu>). It is my contention that we must explore the normative grounds of a sustainable philosophy of technology that takes both naturalism and ethical decisions seriously, in light of recent developments in neuroscientific research, so as to contribute to a neuroethics of biomedical engineering and a neuroengineering of bioethics. In order to avoid the reduction of applied ethics to a mere instrumentalization of technology in accordance with some pre-established ethical code, we must revisit the naturalist critique of normativity and recast the very problematic at stake. On the one hand, naturalists like Patricia Churchland convincingly argue for a naturalizing programme, so that "what we humans call ethics or morality" could be conceived of as "a four-dimensional scheme for social behavior that is shaped by interlocking brain processes: (1) caring (rooted in attachment to kin and kith and care for their well-being), (2) recognition of others' psychological states (rooted in the benefits of predicting the behavior others), (3) problem-solving in a social context (e.g., how we should distribute scarce goods, settle land disputes; how we should punish the miscreants), and (4) learning social practices (by positive and negative reinforcement, by imitation, by trial and error, by various kinds of conditioning, and by analogy)" (Churchland, 2012, p. 9). On the other hand, for authors that stem from an ethical-normativity background like Christine Korsgaard, Darwin's sentimentalist account, together with classic accounts of normativity (voluntarism and realism) and neo-empiricist, naturalist variants (Putnam, Prinz, Churchland) are unsatisfactory, as they all fail to "pay adequate attention" to the unique characteristic of "normative self-government, the capacity to be motivated to do something by the thought that you ought to do it" (Korsgaard, 2010, p. 3). Korsgaard recasts constructivist features of normative realism, as she critically revisits Hume, Kant, and Nietzsche, exploring the innovative accounts of Reflective Endorsement and the Appeal to Autonomy so as to make a case for a procedural normative realism.

I propose to review some of these intriguing, polemical issues of normativity and naturalism at the crossroads between neuroscience and neuroethics, neuroengineering and applied ethics. After all, as Jesse Prinz put it so well in his trilogy, a theory of the self, consciousness, and human nature is inseparable from a theory of emotions and any aspiring theory of normativity –moral, legal, economic, and political: "Morality is a normative domain. It concerns how the world ought to be, not how it is. The investigation of morality seems to require a methodology that differs from the methods used in the sciences. At least, that seems to be the case if the investigator has normative ambitions. If the investigator wants to proscribe, it is not enough to describe" (Prinz, 2004, p. 1). Prinz rejects thus metaphysical versions, reductionist and strong methodological naturalism (or physicalism) to rehabilitate a transformation naturalism (the "view about how we change our views ") that can be systematically revisited in the light of scientific findings and results of the empirical sciences of behavior.

In an ongoing interdisciplinary research in "Social Media and Decision-Making Processes: Reason and Emotion in Social Relations" (supported by the Brazilian National Research Council, CNPq, and the Brain Institute, InsCer, at Porto Alegre), we set out to investigate the processes of moral decision-making that materialize in everyday, off-line practices and in online, social media (particularly on Facebook platform).² These processes are investigated within an interdisciplinary perspective of neuroscience, more specifically, from the standpoint of the neural basis of these decision-making processes, as one of the most intriguing tasks of neuroethics lies on the very level of its normative grounds, namely, what accounts for the moral justification of doing the right thing in given circumstances that can be described with the aid of neurotechnologies. The descriptive and experimental dimensions of most experiments fail to provide for such a moral justification,

² "Social Media and Decision-Making Processes: Reason and Emotion in Social Relations," Brain Institute, Brazilian Center for Research in Democracy, Bioethics Institute (PUCRS); MCTI/CNPq N ° 405998/2012-0, MEC/CAPES N ° 18/2012: Alexandre Rosa Franco, Augusto Buchweitz, Charles Borges, Cinara Nahra, Daniela Tocchetto, Felipe Karasek, Jaderson Costa da Costa, Luiz Stern, Mirna Wetters Portuguez, Norman Madarasz, Nythamar de Oliveira, Renata Kieling, Vanessa Labrea.

insofar as causality or causation cannot be taken for granted or satisfy ought-like normative claims. Neuroethics deals precisely with this intersection of possible, imaginable uses of neurotechnologies and their moral acceptability, desirability, and permissibility: when is it permissible to alter a person's psychological conditions, dispositions, memories, to the point of influencing her personality traits or "reading" her mind? What can neuroscience tell us about free will, self-control, self-deception, conditioning mechanisms and the very justification of moral paths to be adopted by one individual or social groups? (Roskies, 2002, p. 21f). It seems that the normative problem must be dealt with at a more fundamental level prior to the discussion of neurotechnologies in neuroethics, bioethics, and applied ethics overall. Of course, most problems in the so-called naturalism-normativity debate have to do with the way terms such as "naturalism" and "normativity" are defined. If we are to avoid historicist and essentialist definitions of nature and naturalism, we might content ourselves with a basic, starting-point definition of Methodological Naturalism (or Scientific Naturalism) according to which hypotheses are to be explained and tested only by reference to natural causes and events. Thus Willard Quine's "naturalized epistemology" and Metaphysical Naturalism (or Ontological Naturalism) refer us back to the question "what does exist and what does not exist?" as the very existence of things, facts, properties, and beings is what ultimately determines the nature of things. I am making a case for a neuroscientific and neurophilosophical research program that revisits Quinean naturalism, just like Churchland and Putnam did, and goes further in a mitigated version like the ones independently spoused by Searle, Damasio, and Prinz, as they respond to the phenomenological, normative challenges (esp. when dealing with intentionality and consciousness) that avoids trivial conceptions of normativity. Indeed, a programmatic definition of naturalism might trivialize the sense of normativity, as in Jennifer Hornsby's conception of Naive Naturalism, according to which in order to avoid both physicalist and Cartesian claims about the mind-body problem, we ought to return to common sense and folk psychology as they implicitly endorse normative and first-personish beliefs (Hornsby, 1997). In order to sort things out, we may follow Prinz in conceiving of four kinds of naturalism:

- i. *metaphysical naturalism*: It is the view that our world is limited by the postulates and laws of the natural sciences. Nothing can exist that violates these laws, and all entities that exist must, in some sense, be composed of the entities that our best scientific theories require. This is a metaphysical thesis; it concerns the fundamental nature of reality;
- ii. *explanatory naturalism*: If everything that exists is composed of natural stuff and constrained by natural law, then everything that is not described in the language of a natural science must ultimately be describable in such terms. This is not equivalent to reductionism in the strong sense of that word. Strong reductionists say that the relation between natural sciences and higher-level domains is deductive. We should be able to deduce higher-level facts from their lower-level substrates. Antireductionists deny this. They think, for example, that there are higher-level laws or generalizations that could be implemented in an open-ended range of ways. Regularities captured at a low level would miss out on generalizations of that kind. The explanatory naturalist can be an antireductionist. The explanatory naturalist does not need to claim that low-level explanations are the only explanations. The key idea is that there must be some kind of systematic correspondence between levels;
- iii. *methodological naturalism*: If all facts are, in some sense, natural facts (according to metaphysical naturalism), then the methods by which we investigate facts must be suitable to the investigation of natural facts. Philosophers sometimes claim to have a distinctive method for making discoveries: the method of conceptual analysis;
- iv. *transformation naturalism*: There is a further kind of naturalism associated with Quine's holism. We are always operating from within our current theories of the world. In making theoretical revisions, we cannot step outside our theories and adopt a transcendental stance. To do so would be to suppose that we have a way of thinking about the world that is independent of our theories of the world. If theories of the world encompass all of our beliefs, then no such stance is possible. Call this transformation naturalism, because it is a view about how we change our views." (Printz, 2004, p. 4f)

Prinz proceeds then to argue that each form of naturalism has implications for normativity, and starting from Hume's Law, he goes on to break it so as to infer prescriptive facts from normative facts as he makes a case for an emotionist theory of normative concepts that allows for relativism and moral progress. In effect, Prinz's takes on transformation naturalism and concept empiricism are what allows for an interesting rapprochement between social epistemology and critical theory. Furthermore, his critical views of both naturalism and nurturism not only successfully avoid the extremes and reductionisms of (cognitivist) rationalism and

(noncognitivist) culturalism –such as logical positivism and postmodernism--, but turns out to offer a better, more defensible account of social epistemic features and social pathologies than most social epistemologists (Goldman et al.) and critical theorists (Habermas, Honneth et al.) have achieved thus far. Such a mitigated view of both naturalism and normativity is contrasted with stricter, conservative views, such as the ones espoused by Derek Parfit's non-naturalist cognitivism and correlated irreducibly normative truths: "Words, concepts, and claims may be either normative or naturalistic. Some fact is natural if such facts are investigated by people who are working in the natural or social sciences. According to Analytical Naturalists, all normative claims can be restated in naturalistic terms, and such claims, when they are true, state natural facts. According to Non-Analytical Naturalists, though some claims are irreducibly normative, such claims, when they are true, state natural facts. According to Non-Naturalist Cognitivists, such claims state irreducibly *normative facts*" (Parfit, 2011, p. 10).

Having been deeply influenced by Davidson's anomalous monism, as Hornsby was, other critics of naturalism and of Quine's Naturalized Epistemology program have argued that one cannot conceive of belief without appeal to normative epistemic notions such as justification or rationality. On this account, mental events are not identical to physical events precisely because they are instantiations of mental properties, but are realized by them. Jaeguon Kim goes on to argue that "the concept of belief is an essentially normative one" so as to inflate normative claims in beliefs and especially within a certain conception of epistemic normativity (Kim, 2004, p. 301-313). Once again, mitigated versions of normativity and naturalism will seem much better candidates, given an inevitable skepticism about normativity, as the evolution of fairness norms show that the latter "evolved because they allow groups who employ them to coordinate quickly on more efficient equilibria as they become available, and hence to outperform groups that remain stuck at the old equilibrium" (Binmore, 2005, p. 171). The idea is that, as Bicchieri has shown, in order for a norm to be a social norm, several conditions must hold, especially that:

- i. A sufficient number of people must know about the norm.
- ii. The people must have a conditional desire to conform to the norm: conform to the norm if you expect others to conform.
- iii. They must expect others to conform to the norm. (Bicchieri, 2006, p. 101)

Social norms are different from personal or idealized rational norms in that they are defined as "customary rules of behavior that coordinate our interactions with others" and are represented as "equilibria of suitably defined games": even though not every equilibrium of a game is a norm, games with multiple equilibria favor the production of resilient norms under changing circumstances: "Due to their longevity, such norms may come to be seen as right and necessary, though in fact they are the product of chance and contingency, and are sustained simply because they coordinate people's expectations about how to interact with one another" (Young, 2008).

Normativity has often been equated with practical rationality or moral reasoning itself, especially in moral epistemology and metaethics. We can thus think of an instrumental conception of practical rationality in individualistic or atomistic terms: "X has reasons for doing so" (Railton, 2003, p. 7). While most people are motivated by some "reasons" –known, unknown, pragmatic or otherwise—for behaving in such and such way, only a few authors trained in the analytical tradition have been devoted to the problem of articulating this philosophical, abstract sense of normativity with what goes on in the concrete, social practices of the lived world (*Lebenswelt*, lifeworld, according to a phenomenological term) and dynamic processes of decision making, including individuation, social interaction and socialization in evolved societies. In this sense, social and moral norms are to be defined not only in strictly prescriptive terms but also in descriptive, behavioral terms (how people in a social group adhere to coding regulations, such as rules, principles, precepts, social practices and beliefs, shared with certain expectations of behavior or in order to achieve a goal), especially as normative behavior, conducts or actions ought to be followed by all or most normal people, in a sense which can be rationally justified (Dancy, 2000). Moral decisions in turn, will be defined as those to be sorted by rational agents, that is, according to the most reasonable criteria for such persons, under certain conditions (to be

more useful, more efficient, leading to the best way of life or simply out of duty as some kind of categorical imperative). Certainly, there is no agreement among philosophers as to what would be "good" or "better", even as to what we call "moral intuitions", which could be constantly subjected to a "reflective equilibrium", in that judgments and intuitions can be revised. Thus, a major challenge to normative ethics, law and politics nowadays is to articulate a justification that meets rational criteria, ontological-semantic and pragmatic, taking into account not only issues of reasoning but also interpretation, self-understanding, historicity and language features inherent in a social ethos. In phenomenological or hermeneutic terms, it is said that normativity must be historically and linguistically situated in a concrete context of meaning, inevitably bound to constraints, prejudices and one or more communitarian traditions, receptions and interpretations of traditions. The ongoing dialogues between neurosciences and different traditions of moral philosophy allow thus for a greater rapprochement between analytical and so-called continental philosophy (esp. phenomenology and hermeneutics). Now it is against such a broad, normative background that we may delve into a quest for "patterns of normativity," that could be thus outlined:

N₁ : Ethical Normativity

If we conceive of ethics as the inquiry into the nature of morality, codes and principles of moral action, and define morality as the actual practice of living according to certain rules of conduct or moral behavior. Broadly speaking, as Christine Korsgaard has argued, Ethical Normativity may as well be regarded as the paradigm of the philosophical problem of normativity *par excellence*: "Ethical standards are normative. They do not merely describe a way in which we in fact regulate our conduct. They make claims on us: they command, oblige, recommend, or guide. Or at least, when we invoke them, we make claims on one another. When I say that an action is right I am saying that you ought to do it; when I say that something is good I am recommending it as worthy of your choice" (Korsgaard, 1996, p. 22). It turns out thus to be always the case that the "motivational force is derived from the normative force," as Korsgaard remarks on Hume and Kant, "rather than the reverse," meaning that the normative force is irreducible to

any heteronomous, sociological, psychological or neurophysiological conditioning.

N₂ : Legal Normativity

Accordingly, normativity comes down to what we are obligated to do, act or behave in given circumstances. We might also think of legal normativity in terms of the binding force and prescriptive dimension of everyday rule-following practices such as that of stopping at red lights, following traffic rules or handing a prescription to the pharmacist to buy medicine in a drugstore. Whatever is regarded as prescriptive is said to be normative in a regulative, law-like common sense of anything prescribed in regulatory environments of lifeworldly, everyday practices (taking a medication and attending to traffic signs). This meaning of normative is also socially construed, hence its legal, institutional sense.

N₃ : Linguistic Normativity

When dealing with "phonetic rules" in his seminal text against the traditional program of normative, analytic epistemology, Quine inaugurates a naturalist program that does justice to what actually happens when we use words to refer to states of affairs. So when someone utters the word "red," there is a linguistic-semantic normativity that allows, in everyday practices of conversation and communication, a certain determination of the intended meaning, despite indeterminacies or variations of what is sensuously perceived, spoken and heard in terms of pronunciation, accent or sounds, regardless of analyticity and meaning (Quine, 1960, p. 85). Now, as we wrap up this basic understanding of normativity thus conceived, we may speak of a semantic, pragmatic view that is combined with the ethical and legal conceptions of normativity. Korsgaard speaks indeed of revisiting the later Wittgenstein's argument against private language in a social context-dependent view of semantic normativity:

1. Meaning is a normative notion.
2. Hence, linguistic meaning presupposes correctness conditions.
3. The correctness conditions must be independent of a particular speaker's utterances.
4. Hence, correctness conditions must be established by the usage conventions of a community of speakers.

5. Hence, a private language is not possible. In a nutshell, since it is a relation in which one gives a law to another, it takes two to make a meaning (Korsgaard, 1996, p. 136-138).

N_4 : Economic Normativity

According to value or normative judgments about economic fairness, what the economy ought to be like or what goals of public policy ought to be: "The impoverishment of welfare economics related to its distancing from ethics affects both welfare economics (narrowing its reach and relevance) and predictive economics (weakening its behavioral foundations)" (Sen, 1990, p.9).

N_5 : Epistemic Normativity

This might be defined as "a status by having which a true belief constitutes knowledge." According to Sosa, epistemic normativity is "a kind of normative status that a belief attains independently of pragmatic concerns such as those of the athlete or hospital patient... We must distinguish the normative status of knowledge as knowledge from the normative status that a bit of knowledge may have by being useful, or deeply explanatory, and so on" (Sosa, 2010, p. 27). From epistemic normativity we may as well infer that epistemic logic, as it has been proposed by Alchourron and Bulygin, explores the possibility of a logic of norms, which is to be distinguished from the logic of normative propositions. Roughly, the distinction is that the former are prescriptive whereas the latter are descriptive. In the second sense, the sentence "it is obligatory to keep right on the streets" is a description of the fact that a certain normative system (say, of social norms) contains an obligation to keep right on the streets. In the first sense, this statement is the obligation of traffic law itself (Alchourron & Bulygin, 1981, p.179f). At the end of the day, these Patterns of Normativity show the aporetic situation of foundationalist theories of normativity that end up falling back into absolutist dogmas of normativity, such as those of religious principles established by the standpoint of God's eye view:

N_0 : divine command theory or absolute normativity (ground zero for all foundationalist theories)

The aporia is that a self-defeating hypothesis inevitably obtains:

$(N_1 \vee N_2 \vee N_3 \vee N_4 \vee N_5) \rightarrow N_0$

$\sim N_0$. Hence, $\sim (N_1 \vee N_2 \vee N_3 \vee N_4 \vee N_5)$ [modus tollens]

It would be thus useless to seek to replace N_0 with any of the imaginable candidates, say, to assume that ethical normativity or semantic-linguistic normativity is the most fundamental way of establishing the normative force of rationality. It seems equally aporetic to replace N_0 with any idea of Nature, *physis* or any imaginable form of "natural" normativity. On the other hand, it seems plausible that, as Rawlsian reflective equilibrium and subsequent accounts of the biological, social evolution of game-theoretic equilibria and fairness norms have shown, an antifoundationalist, coherence theory of normativity can be fairly combined with naturalized versions of ethics, law, language, epistemology, economics etc. By recasting a weak social constructionist correlate to a mitigated naturalism, it is reasonable to recognize that, although socially constructed, moral values, practices, devices and institutions such as family, money, society and government cannot be reduced to physical or natural properties but cannot function or make sense without them.

By way of conclusion, as Damasio and Prinz showed in their emotionist-sentimentalist theory of morals, reason, emotions and decision-making processes can be articulated in terms of empirical and philosophical language, in that cognitive feelings and a reflective level are integrated with noncognitive emotions, particularly the so-called "primary emotions." Damasio has decisively contributed to interdisciplinary research in cognitive sciences, neurophilosophy, neurobiology of mind and behavior, particularly at the crossroads of emotions, decision-making, memory, communication, creativity, and consciousness as neurophysiological phenomena that call into question reductionist approaches. Indeed, the publication of his *Descartes' Error*, in 1994, started off a real turning point not only in neurology, psychiatry, neuroscience, and cognitive psychology, but also in the philosophy of mind and language, linguistics, computer science, sociology and anthropology, as it undertook a radical critique of Cartesian dualism, opposing dichotomies of soul and body, brain and mind, reason and emotion. Since the 1950s and 60s, research in neuroscience has already shaken apparently insurmountable problems in various models of dualism and of several others that have emerged in the following decades, with alternative proposals to patterns of behavior

conditioning (behaviorism), theories of identity (between mind and brain), the physical states of the brain (physicalism) and their causal roles and functions in a complex economy of internal states, mediating sensory data inputs and behavioral outputs (functionalism), as well as the materialistic reductionisms that supposedly eliminate folk psychology and normative accounts that allude to psychological states (eliminative materialism). Damasio's work fostered a fruitful dialogue between neuroscientists and philosophers of mind, especially within neurophilosophy and cognitive sciences, as attest seminal works by Churchland and Prinz. Of particular concern is their recasting of the "social brain" problem, as Damasio, Churchland and Prinz assume that the philosophical underpinnings of cognitive and moral decisions are at the center of discussions about human nature, in that morality evolves as one of the elements that distinguish humans from other animals. Moral decisions occupy, after all, a central place in defining the human being, at the heart of decisions that define us in relation to cultural issues, relationship issues and personal and political choices that ultimately help us set the "self" in everyday relations to ourselves and to the others and within a particular milieu. Damasio establishes thus the correlation between practical reason and emotion, combining the awareness notion of decision-making and planning at different time scales, creating possibilities of interaction with the environment and the selection of courses of action, with all processes and steps interconnected. Damasio manages thus to articulate the social, intersubjective, and neurobiological processes that explain the evolution of the human brain and the emergence of consciousness, the "I", memory, language, subjectivity and their representations and creative constructions and carriers of meaning. According to Damasio,

Both basic homeostasis (which is nonconsciously guided) and sociocultural homeostasis (which is created and guided by reflective conscious minds) operate as curators of biological value. Basic and sociocultural varieties of homeostasis are separated by billions of years of evolution, and yet they promote the same goal—the survival of living organisms—albeit in different ecological niches. That goal is broadened, in the case of sociocultural homeostasis, to encompass the deliberate seeking of well-being. It goes without saying that the way in which human brains manage life requires both varieties of homeostasis in continuous

interaction. But while the basic variety of homeostasis is an established inheritance, provided by everyone's genome, the sociocultural variety is a somewhat fragile work in progress, responsible for much of human drama, folly, and hope. The interaction between these two kinds of homeostasis is not confined to each individual. There is growing evidence that, over multiple generations, cultural developments lead to changes in the genome. (Damásio, 2010, p. 31)

Damasio's integrated views of emotions and feelings not as "intruders in the bastion of reason" but enmeshed in its networks, for worse and for better, are revealing: "The strategies of human reason probably did not develop, in either evolution or any single individual, without the guiding force of the mechanisms of biological regulation, of which emotion and feeling are notable expressions." Accordingly, empathy is a highly flexible, context-dependent response to these networks, ultimately leading to cooperation and the evolution of social norms, especially fairness norms. Damasio evokes thus the process of a sociocultural homeostasis so as to refer to the social and cultural imbalances allowing for the detection of an imbalance at a high level of a conscious brain-mind in the stratosphere and not in subcortical level. Damasio's takes on emotions and feelings within an integrated 4EA-view of cognition, very much like Prinz's, allow for a homeostatic understanding of the development of moral rules, laws, and justice systems (very much like Rawls's conception of a wide reflective equilibrium), as a response to the detection of imbalances caused by social behaviors that make endanger individuals and the group. The cultural devices created in response to the imbalance aim to restore the equilibria of individuals and the group. So people are capable of social cooperation and empathy, but they can be also callous, indifferent and socialized into *schadenfreude* (finding pleasure in others' pain) –the social, cognitive, and neural mechanisms underlying empathy and that may help to alleviate humanity's deepest tragedies and facilitate its greatest triumphs. So this intricate connection of the body to emotions is related to homeostasis, which can be rethought of as the machinery regulating life that also has to do with the development of culture. This development manifests the same goal as the form of homeostasis. It reacts to the detection of an imbalance in the process of life and seeks to correct it within the limits of human biology and the

physical and social environment. The contribution of economic and political systems, as well as, for example, the development of medicine, are a response to functional problems that occur in the social space and require a correction in this space, so that will not undermine the regulation of vital individuals that constitute the group. We come thus full circle within a broad understanding of wide reflective equilibria, in sociocultural homeostatic and social-ontological terms, allowing for intersubjective and linguistic interactions and co-constitution of meanings. As De Caro and Macarthur aptly pointed out, "the thought that the debate over which form of naturalism is best will depend to a considerable extent on which provides the best account of core normative phenomena such as reasons and values" (De Caro & Macarthur, 2010, p. 9). To the extent that a mitigated social constructionism allows for both naturalism and normativity to be fully understood and appreciated without reductionisms, a social neurophilosophy meets the normative challenges of neuroethics in our age of new technologies and innovative revolutions.

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