

Report on Conceptual Issues in Human Identity (D12.2.1 - SGA2)



Figure 1: Reflections on human identity

The Neuroethics and Philosophy group of SP12 is responsible for the analysis of the conceptual underpinnings and implications of HBP research, as well as the identification and articulation of the philosophical and ethical issues raised by the research, its findings, and its applications.

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Abstract:	<p>By providing knowledge of the structures and functions of the brain, neuroscience is expected to further our understanding of our “humanness” and to promote the development and applications of neuro-technology to alleviate symptoms or even enhance the human brain. In this report, we provide a conceptual examination of relevant epistemological and ontological issues raised. First, we offer some distinctions. Next, we provide a brief overview of how our humanness has been generally understood in Western culture. We propose that an integrative approach that combines empirical studies and conceptual analysis might be particularly beneficial in allowing us to unveiling what makes us human will benefit from a focus on the constant and complex human neuro-cultural interplay that enables complex behavioural and cognitive features. To that end, understanding the development of the brain and, in particular, the process of synaptogenesis is important.</p>		
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Table of Contents

1. Introduction	4
2. Conceptual distinctions	4
3. An overview of the discussion	5
4. Can neuroscience contribute to the debate over what makes us human?.....	6

Table of Figures

Figure 1: Reflections on human identity	1
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1. Introduction

It is often suggested that by providing knowledge of the structures and functions of the brain, not only will neuroscience enable a richer understanding of the brain and its diseases, but it will further our understanding of what sort of beings we are (1-3). Indeed, unveiling some of the components of our humanness is an explicit goal of the HBP and an implicit interest of other international brain initiatives. Furthermore, the issue of whether there are species-typical properties and what they are is not just theoretically but also practically relevant. The same progress in brain research that might allow considerable insights into our humanness can also provide means to manipulate and access the brain. Some fear that such manipulation and access could make a significant impact on what humans are, and quite likely alter how people understand themselves as human (4-6).

Although often unacknowledged, particular theoretical commitments about what constitutes human nature (a notion notoriously difficult to pin down) underlie and shape the discussion about neuro-technologies' potential impact on our humanness in general, and on what makes us specific humans in particular. While it has not been uncommon to hold an essentialist view of human nature, essentialism has been challenged. That this is the case suggests that an examination of the notion of human nature is key for moving the discussion over its potential alteration forward.

In this report we focus on this topic. On the basis of some conceptual distinctions, we offer a brief overview of how what makes us human has been generally understood in Western culture. Against that background, we advance that our quest for unveiling what makes us human might benefit from a focus on the constant and complex human neuro-cultural interplay that enables complex behavioural and cognitive features (7-9).

2. Conceptual distinctions

In discussions involving neuroscience and its impact on our humanness often a number of concerns are insufficiently distinguished. To illustrate, in recent work we read that neuroscientists should be asking "what makes us who we are" (10), that emerging neuro technologies may not only produce significant changes on human self-understanding at the conceptual level (challenging their self-understanding and identity *qua* humans (5, 11, 12)), but also that by changing human capabilities (be it through pharmaceutical, surgical, or other forms of intervention) they could radically alter human beings themselves and humanity in general (6). In the last decade, two reports by two US Presidential Commissions have expressed concern about the possibility that biotechnological interventions will affect what sort of beings humans are, making us doubt whether the resulting conditions and activities of our bodies and minds are in a full sense "human" (13) and affecting our individual conception of "the very private and autonomous nature of the self" (14).

Prima facie, claims about neuroscience and its impact on what we are can refer to a number of different epistemological, ontological, and ethical issues. From an epistemological perspective, we find, on one hand, claims about the extent to which neuroscience can be a source of insight regarding what makes us human and, on the other, concerns about the extent to which emerging neurotechnologies might alter prevailing understandings of our humanness. From an ontological perspective, there are concerns about the extent to which emerging neurotechnologies might affect traits that humans as such supposedly share, and worries about the extent to which they might affect specific individuals' self-conceptions and sameness over time. From an ethical perspective, the main concern has to do with whether neurotechnology might/will undermine human uniqueness, allegedly depriving humans of their ethical agency.

It is also evident that there is a difference between the issue of whether neuroscience and neurotechnology will further our *knowledge* about what human beings are (enabling their identification); whether they might *de facto alter* humanity as such (affecting their persistence as humans), and whether certain brain interventions might change the personality of *specific* patients (where humanity in general need not be affected) (15). The first and second issues revolve around what we call "human identity", where *human* identity is loosely understood in terms of that identifiable "something" that makes humans be what they are. The last issue has to do with what it is to be one particular human instead of another, that is, it is related to *personal* identity in at least

the numerical and narrative senses (i.e. can certain procedures change features proper to users? what does this mean regarding who they are as individuals?). In this report, the focus is on analysing some of the issues involved in human identity.

The issue of human identity can be broken down further into two. One is the ontological question of *what* makes humans be what they are, which has typically led to addressing the topic of whether there is a human nature and if so how to understand it. A second, is about what being human *means*. Addressing this requires delving into questions of meaning and purpose. To that extent, this concern is not answered by appealing to purely ontological considerations: it requires an examination of others including semantic, epistemic, and possibly ethical considerations. In what follows, we concentrate on the issue of what makes us human without addressing concerns about what being human *means*.

3. An overview of the discussion

At a basic level, this question can be answered by listing a number of observable physiological and psychological characteristics and by pointing to our membership in a specific (often genetic) lineage, which non-controversially classifies us as human. However, a descriptive answer falls short of an explanation of what people have in mind when they claim that neuroscience will allow us to uncover what makes us human (which appears to call for an explanatory account of what makes us human) or when they worry about the potential impact of neuro-interventions on our humanity (which raises the issue of what must be altered for humanness to disappear).

In the domain of the humanities, philosophers have gone about looking for an answer to the question of what makes us human by debating the notion of human nature. In philosophical (and folk-biological) discussions about this topic, essentialist approaches have often prevailed (16). In general, essentialism tends to understand species at least partly in terms of (a) the possession of an inner nature consisting in a core set of innate properties (what those properties are is open to debate) that (b) fulfil certain functions and (c) are transmitted across generations (16, 17). In the debate over human nature, it is possible to identify different versions of essentialism: from those that, resting on a particular conception of the divine and of humans as creations, consider the notion of “human” a regulatory ideal (18) to more secular ones that shy away from normative considerations (19). However, different essentialisms share the view that human nature is in an important respect outside of human control, its characteristic properties influenced by us only peripherally.

The Darwinian theory of evolution with its emphasis on transmutation by arbitrary variation and natural selection of characteristics proved decisive in challenging the fixity of species and in (at least partly) undermining the role played by the prevailing Judeo-Christian tradition in understanding humans. For the Darwinian view, species are generally dynamic, shifting across space and time: genetic and morphological changes do not necessarily bring new species to life. Accordingly, Darwinism proposes a *dynamic* view of human nature that allows for properties possessed as a result of evolution. The Darwinian conception shaped the debate on human nature from then on and, in some cases, it even led to challenges to the plausibility of the notion of human nature itself. Indeed, some philosophers of biology have argued that considering the absence of any compelling biological grounding (20) the very idea of human nature is philosophically senseless and practically useless from a moral aspect (21). Others, however, hold that rather than the notion of human nature, we should jettison its essentialist understanding in favour of accounts of human nature that embrace diversity and are more aligned with evolutionary biology. One such proposal stands out. The “nomological view” proposes that human nature be understood in terms of a set of properties (not all of them unique) that are the product of evolutionary processes that generally hold across humanity, in the sense that humans reliably but not necessarily always manifest them (22). While this view avoids the commitment to unique universal human traits, it remains committed to natural properties as it specifically excludes any traits that have to do with enculturation and learning. An alternative view, the “trait cluster” account goes a step further by providing an understanding of what makes us human in terms of patterns in the distribution of traits (both natural and cultural) within the set of the life histories of all existing human beings (23). While the trait cluster account agrees with the nomological view in its rejection of essentialism as traditionally conceived, it differs in that it (a) tries to go beyond properties or traits by embracing the idea that what makes us human

consists in patterns of expression of such traits and (b) rejects the distinction between natural and culturally shaped traits. By holding that “human nature lies within the pattern of expression of the traits” the “trait cluster” view provides a good transition to a third understanding of what makes us human, one that completely abandons the property or trait-centred framework to argue that what we are is to be found in the processes and mechanisms underlying observable properties.

Within this third view, we find two distinctive approaches. One is the Developmental Systems Account (DST). Rejecting commonly accepted dichotomies such as “innate-acquired”, “inherited-learned”, “gene-environment”, “biology-culture” and “nature-nurture,” DST conceives human nature as the product of deeply integrated developmental systems (17, 24), “a matrix of genetic, epigenetic, and exogenous resources within which the developmental process or life cycle unfolds” (25). The term “ontogenetic niche” is intended to capture this idea. It is generally understood as the “set of ecological and social circumstances inherited by organisms” (26), the dependable developmental extraorganismic resources where development takes place (27). On this view, the ontogenetic niche both ensures stable development of species-specific traits and provides input to developmental plasticity (17, 27).

A second process-oriented approach identifies human nature with “a suite of mechanisms, processes and structures that causally explain many of the more superficial properties and regularities reliably associated with humanity,” particularly behavioural and cognitive ones (28). Although labelled “causal essentialism,” it is not to be confused with the most common version of essentialism that considers innate essences to express themselves in intrinsic properties. For causal essentialism, the essence of humans are the processes (historical, relational, biological) which are responsible for different properties and operate at different time-scales.

4. Can neuroscience contribute to the debate over what makes us human?

We believe it can do so by providing important insights into the reciprocal interplay between organismic and extra-organismic elements in the brain. In recent years, neuroscientific discourse on the brain has developed a more nuanced understanding of this organ and its relational aspects, including its relationship with the body, its many environments, and the social contexts in which it is embedded. The view of the brain as a mechanistic input-output processing device has been consistently questioned and generally abandoned. An alternative model that sees the brain as an «autonomously active, plastic, projective» and highly selective organ heavily affected by learning and experience has greater explanatory potential (9, 29-31) and gives support to the view that human identity is importantly related to the dynamic, constant, and prolonged interaction with diverse physical, biological, social and cultural environments (32).

The theory of neuronal epigenesis by selective stabilisation proposes that even if constrained by a genetic envelope, the human brain is able to adapt its neuronal connectivity by stabilising or eliminating particular synapses in accordance with short- and long-term changes in its internal and external environment (7, 33). This theory has been used not just to explain the development of the brain, but also the acquisition of written and oral language, and the acceptance of and compliance with social and ethical rules (8, 30, 34). If correct, it provides grounds for endorsing a process-oriented view of what humans are. Rather than looking for intrinsic universal human traits or presumptively confirming the importance of one or a group of specific behavioural or anatomical markers, it suggests that in our quest for humanity, we focus on the constant interplay that allows for the coalescence of learning, experience, and genes and we examine how lived developmental histories, dynamic interactions, and social environments impact synaptic connectivity and contribute to the formation of a variety of patterns of neural activity. This is our forthcoming line of research: philosophical analysis of underlying assumptions, and of different scientific and philosophical interpretations of the strong epigenetic interactions with the physical, social and cultural environment that, by leaving major traces, gives support to a process-oriented understanding of what makes us human. We will continue to analyse empirical findings on variability due to age, sex, environmental, and societal influences, and will also continue to focus on personalised brain models in order to determine the extent to which societal variations expressed in the variability of brain

structure and function and resulting from epigenetic interactions contributes to understanding our humanness in terms of a very interactive process and to explaining our differences with other species.

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