

Humans: Minds and Purpose

Short Course @ YSU
April 30, 2026

- 1 How do these issues change when they're applied to neuroscience, given its close connection with other philosophical domains?
- 2 Case study: nature and nurture in human behavior
- 3 Does Darwinian evolution change our understanding of human purpose? Should it?



How and why is neuroscience, in particular, epistemically interesting?



Metaphors for the brain have a tendency to change with our metaphors for contemporary technology:

- 1 The brain as a stringed instrument (harpsichord)
- 2 The brain as a clockwork machine
- 3 The brain as a telegraph network
- 4 The brain as a computer
- 5 The mind as “software” that runs on neural “hardware”
- 6 The brain as a communication network



Metaphors for the Brain

The difficulty is that in order to make a simple generalization about how some aspect of the brain functions, scientists have to retreat to such a broad level of abstraction that their assertions become almost empirically meaningless. (Hardcastle, 275)



The “Connectome” of *C. elegans*

FIXME IMAGE



In neurobiology, scientists start with a theoretical description at the most general level; it is what we might call the “theoretical framework” – the most general component in a neurobiological theory. Once they adopt the framework, they can make more precise hypotheses as a way of filling out their theoretical proposal. (Hardcastle, 279)



Theories in neuroscience, then, will always involve a tension between what data we can reasonably access (which decreases radically as complexity goes up and as our study system approaches humans) and what data we would need to “really” confirm a given theory (whatever it is that that might mean).



FIXME fMRI image, say from the Knobe papers?



What we hope to do is break the brain down into **modules**, and detect the contribution of each to **particular cognitive tasks**.

FIXME example, maybe from ethical reasoning



Detecting “Modules”

But as the imaging technology improves and the SNR increases, scientists see more and more sites that differ across trials. The more sites they get, the more it appears that essentially the entire brain is involved in each cognitive computation. And the more it appears that the entire brain is involved in each thought, the less it is they can justify any assumption of functional specificity in the brain. [...] Put in the harshest terms, brain imaging seems to support reductionism because the science is not very good yet. (Hardcastle, 288)



Traits of Minds and Brains

How can, or should, we tell the difference between characters that are properties of the **mind** and characters that are properties of the **brain**?

Is this a **morally** significant difference?



Intuition, at least, tells us that **yes, it is.**

Most people seem to think that if a characteristic is a feature of one's **brain**, it is **innate**, in some sense **beyond our choice**, and therefore **cannot be our responsibility**. (The inverse, then, would be true for features of our **minds**.)



Neurobiologists are already tracking where and how moral decisions are made in the brain; they are also looking at brain differences between normal and sociopathic, psychopathic, and violently impulsive individuals. [...] We can now identify such trends in individuals before they actually commit any crime. Should we? And what should we do with such information once we have it? (Hardcastle, 289)



FIXME that one study about judges and juries when presented with neuroscience info



Part 2: Nature and Nurture

Does it make sense to say that some of these traits are due to our nature, and others to our upbringing/environment (or nurture)?



There is a simple, quick answer here: No, it doesn't. **Every trait** is, at least to some degree, influenced both by our environment and by our biological makeup.

But that's where the trouble starts. How, then, should we analyze these two (*apparently* different?) factors that each contributes to our development?



Individually Necessary

One thing is certain: “innate” and “acquired” factors are each **individually necessary** for the development of essentially any character of living organisms.



Jointly Sufficient?

But it is equally important to note that, on a classic view of “the innate” as identical with “DNA,” and “the acquired” as identical with “the environment,” these two categories are **not** jointly sufficient for developing an organism.

There are a vast number of biological levels *between* DNA and the external environment, *all* of which must work in harmony for an organism to function.



Jointly Sufficient?

These problems get worse when applied to the mind. Imagine that we *did* have a particular gene associated with a particular mental trait.

Is it the direct contribution of that gene that matters (i.e., the sequence of amino acids in the protein that it produces)? Is it how the gene changes *local* neural functioning (on the order of individual neurons and their signaling capacity)? Or how the gene has downstream effects on neural *structure*? Or how that *structure* enters into larger-scale neural interactions in cognition? Or how those cognitive behaviors interact with others, or our society?

At what point on that continuum does a trait stop being “innate” and start being “acquired”?



“Proportion” of Effects

That is, rather than spending time answering nonsensical questions about *how much* Nature or Nurture influences the development of a characteristic, the question that should be driving our research programs and that should be situated at the center of our life sciences curricula is: *how is it* that genetic factors, proteins, cells, organs, organisms, populations of individuals, cultural factors, and other aspects of an organism’s environment co-act to produce the organism’s traits (i.e., phenotypes) in development? (Moore, 633)



So return to that study about judges and mental illness: what do we do if we know that *any* trait could be potentially modified by the environment, but for many we *don't know how* to do so?

The story of responsibility and the impact of “biology” on moral judgments becomes significantly more nuanced...



What about at an even broader level? Does the evolved nature of humans and our minds change something about our “purpose” or the “meaning of life?”



Before evolutionary theory in its modern sense, everyone – even those who believed in pre-Darwinian evolutionary theories! – believed that humans were special, either because of our relation with the divine or because of our nature as the “end goal” of the organic world.

Especially important here have *always* been our **abilities to reason, use language, etc.** In short: **our minds.**



Darwin has a problem. He *wants* human beings to be special, both as the ultimate in biological and the ultimate in social progress. (The latter comes with a fair bit of colonialism and racism thrown in.)

But his theory seems to **lack any way to make a “real” progressive trend like that.**





This improvement will, I think, inevitably lead to the gradual **advancement of the organisation** of the greater number of living beings throughout the world. But here we enter on a very intricate subject, for naturalists have not defined to each other's satisfaction what is meant by an advance in organisation. Amongst the vertebrata **the degree of intellect** and an approach in structure to man clearly come into play. (Darwin, *Origin* 3E, 133)



So, for Darwin, the **complexity of the organization of the mind** becomes the criterion of evolutionary progress.

But we come back to the problems from before: what does it mean to measure the complexity of our minds, or of those of other animals?



In any case, though, it seems like **intelligence is an ecological niche:** intelligent creatures can interact with their environments in ways that others cannot, and so “using” this “space” will be a winning move.



I suspect, however, that few would think the emergence of humans was entirely a matter of chance. Or if they would, then like Gould they would not care to deny that somewhere, somehow in the vast universe, humanlike beings have emerged or will emerge. (Ruse, 139–40)

