

3. Biological theories

Materialist philosophers of mind sensitive to the difficulties inherent in deriving meaning from brute causation have suggested that a more plausible candidate for a purely physical property capable of grounding intentionality might be found in the notion of biological function. Fins perform the function of allowing the organism having them to move through the water. Wings perform the function of allowing winged creatures to fly. Hearts perform the function of pumping blood. These organs serve these functions because natural selection formed them to do so. Might this sort of function underlie [p. 146] the meaningfulness of mental states? It is, after all, surely the function of a desire to drink water to get a creature that has that desire actually to drink water, which a creature needs to do in order to survive and reproduce; that is plausibly why natural selection put such desires into creatures. And perhaps that's all it is for the desire to have the particular meaning or intentional content it has: its representing water is nothing more than it's serving the function of getting the creature to drink water. **Meaning, on this view, is identical to biological function** -hence it is sometimes called a **biosemantic theory of meaning** (a label associated with Ruth Millikan, one of its main proponents).

An advantage of this theory is that it seems to provide a way of dealing with the **misrepresentation problem.** If the meaning or intentional content of a mental state derives from the biological function it serves, it will have that same meaning even if on some occasions it is caused by something other than what it is normally caused by. There thus need be no mystery about how a mental state could be about something other than what happens to cause it on some particular occasion, and thereby misrepresent what happens then to cause it. For **example, if the desire to avoid snakes has the meaning it does because it serves the function of causing the creature having it to flee when snakes are present, it will still have this meaning even when a particular instance of it is caused, not by the presence of a snake, but by the presence of a rope or a hose that, due to odd lighting, looks like a snake.**

Nevertheless, there are several serious objections to the biological theory. **An obvious initial objection** is that at best, it seems dubious that it could account for such sophisticated mental states as, say, one's belief that Wittgenstein was a more important philosopher than Russell: surely natural selection never hard-wired such a belief into anyone, for beliefs about the relative importance of Wittgenstein and Russell could not only not have occurred to anyone in the period of history in which natural selection formed human nature, but wouldn't have served any evident biological function even if they had occurred to anyone then.

Biosemantics advocates hold that such highly complex mental states might, nevertheless, derive a **secondary functionality** by virtue of their relationship to mental states - like the desire for water - that are more clearly functional. But however such a suggestion might be developed, there may be deeper problems. One of them is that the theory appears to entail that nothing that didn't evolve could possibly have intentionality for, not having evolved, it wouldn't have states that serve any particular function. But this seems false: we can certainly at least [p. 147] imagine cases where creatures come into existence other than by evolution, and yet have intentionality. If a freak occurrence in a swamp were spontaneously to generate out of the muck a molecule for molecule living duplicate of you - "swampman," as philosophers who have discussed this sort of example have affectionately dubbed it - then this duplicate would surely have thoughts, experiences, and other intentional mental states, despite not having come about through evolution.

Another difficulty is that the **biological theory seems unable to deal with the disjunction problem:** if, for example, a desire to avoid cheetahs happened to be hard-wired into our ancestors as a result of their interactions with both cheetahs and tigers-in-certain-circumstances (for example, at night time when tigers might be hard to distinguish from cheetahs), then it would seem to follow that the biological function of this desire is to get us to avoid both cheetahs and tigers-in-certain-

circumstances - and thus it would follow too that the desire represents, not cheetahs uniquely, but rather cheetahs OR tigers-in- certain - circumstances.

In reply to this, **Daniel Dennett** has suggested that if such examples indicate that meaning must be indeterminate on a biological theory of intentionality, this does not serve as an objection to the theory, for such **indeterminacy** is common throughout the biological realm. A certain organ may have evolved originally to serve one function, and then at a later stage in evolution taken on another: one creature might have evolved feathers because they served the function of attracting mates; while its descendants, having migrated to a colder environment, found that the feathers served to keep their bodies warm, a function the feathers might retain even if the mating function disappears. Which function the feathers really serve might, at some stage in this long evolutionary process, simply be indeterminate. But in that case, why couldn't the meaning of a desire to avoid cheetahs also be indeterminate (that is, not clearly about cheetahs uniquely as opposed to cheetahs OR tigers-in-certain- circumstances)? Why assume this is a problem for the biological theory, rather than just a further instance of the ambiguity evident in many biological phenomena?

One possible objection to this reply is that it fails to explain how the biological theory can deal with cases of mental states whose meaning or intentional content is determinate and unambiguous (the case for holding that there are indeed such mental states being something we'll examine shortly). Another objection is that even if all our mental states [p. 148] were indeterminate or ambiguous in their meaning or content, this would not save the theory; for even if the theory could explain why they have ambiguous meanings, it would not explain why they have any meaning at all. While a heart serves the function of pumping blood, the heart nevertheless doesn't mean or represent pumping blood - for it doesn't mean or represent anything at all. It's just a muscle.

Words, sentences, and pictures mean things, but muscles surely don't, any more than gall stones or hangnails do. But if having evolved to serve a certain function doesn't suffice to give the heart meaning or intentional content, why would this suffice to give a belief or desire meaning or intentional content? Wouldn't mental states exhibiting intentionality already have to exist in the first place in order for natural selection to select some of them as having survival value?

If so, then even if a mental state's serving a particular biological function could account for its having the specific meaning that it has (ambiguously or otherwise), it couldn't account for its having any meaning at all. Natural selection's purported ability to shape meaning would presuppose that there is meaning there to be shaped - in which case biological function couldn't possibly provide a **full explanation of meaning**.

This is, of course, an application to the biological theory of an objection already considered when discussing the conceptual role and causal theories - namely that the operation of the mechanism the theory appeals to in order to explain **intentionality itself presupposes intentionality**. That this criticism seems to apply to the biological theory as much as to the causal theory is even more evident when one considers that ultimately, there may be no substantive difference between them.

For, as **Searle** has argued, the trouble with appeals to biological function in this context is that all talk about biological function must, from a Darwinian point of view anyway, be regarded as nothing more than a shorthand for talk about causation. To say that the heart was selected by evolution to serve the function of pumping blood is, strictly speaking, to say something false; for evolution doesn't literally "select" anything, nor does the heart literally serve any purpose or function at all, at least not on a Darwinian view. Indeed, the whole point of Darwin's account of evolution by natural selection is to get rid of the need to appeal to literal purposes and functions in nature - to explain the appearance of purpose and function in terms that make reference only to purposeless, meaningless causal processes.

The right thing to say about the heart is, in a Darwinian view, just this: it causes blood to flow and it was in turn caused by a series of successive genetic [p. 149] mutations that allowed the creatures exhibiting them to survive and reproduce in greater numbers than those which lacked them. And that's it. If talk about the "purpose" or "function" for which the heart was "selected" has any application at all, it is only as a way of noting how what in reality are the purposeless, functionless, and meaningless results of unthinking causal processes can seem to be purposive, functional, and meaningful.

Talk about purposes and functions, if taken literally, seems to presuppose. Intentionality; in particular, it seems to presuppose the **agency of an intelligence** who designs something for a particular purpose or to serve a particular function. But the aim of Darwinian evolutionary theory is to explain biological phenomena in a manner that involves no appeal to intelligent design. As we've had reason to note in earlier chapters, just as modern physics has tended to explain phenomena by carving off the subjective qualitative appearances of things and relocating them into the mind, so too did the Darwinian revolution in biology push purpose and function out of the biological realm, making them out to be mind-dependent and devoid of objective reality.

This is of a piece with the general materialistic tendency to regard genuine scientific explanation as requiring the stripping away of anything that smacks of the subjective, first-person, intentional point of view. It thus seems odd that materialist philosophers should think it a hopeful strategy to appeal to biological function in order to account for intentionality. As Searle argues, this move is simply not open to them, given what is entailed by a Darwinian account of the biological realm - an account materialists must necessarily be deeply committed to.