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THERE MUST HAVE BEEN A FIRST GENERATION

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I argue, from premises accepted by every educated person, that there must have been a first human generation, contrary to what Richard Dawkins and Daniel Dennett have prominently claimed.

Introduction

The world's most famous biologist by far, Richard Dawkins, has written that 'there never was a first [human] . . . a first rabbit . . . a first crocodile . . . a first dragonfly' or a first member of any extant or extinct species or genus (Dawkins 2012: 38). Using the working assumption that *Homo erectus* was the species that gave rise to the human species, *Homo sapiens*, he writes: 'You are *Homo sapiens* and your 50,000-greats-grandfather was *Homo erectus*. But there never was a *Homo erectus* who suddenly gave birth to a *Homo sapiens* baby' (Dawkins 2012: 42). Dawkins could have omitted the word 'suddenly', and not just because few of those who have given birth to a *Homo sapiens* baby would be likely to describe the process as 'sudden'. His point is that 'Every creature ever born belonged to the same species as its parents' (Dawkins 2012: 38), whether or not its birth was sudden.

Elsewhere, this time using the alternative label '*Homo ergaster*' for 'the predecessor species that gave rise to *Homo sapiens*', Dawkins and co-author Yan Wong write:

> There would never be a generation in which it made sense to say of an individual that he is *Homo sapiens* but his parents are *Homo ergaster*. You can think of it as a paradox if you like, but . . . [i]t is no

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> more paradoxical than the statement that there is never a moment when a growing child ceases to be short and becomes tall.[1] (Dawkins and Wong 2016: 353)

Dawkins has reaffirmed these claims in public remarks on numerous occasions,[2] sometimes acknowledging that the claims at least *sound* paradoxical. Nevertheless, he says, the claims are true and important.[3] But the claims can be shown to be false using only premises that every biologist – indeed, every educated person – accepts.

The Argument

Solely for economy of expression, I will use 'human' both as a noun referring to any member of the species *Homo sapiens* and as an adjective attributing such membership. The argument for a first human generation is straightforward:

(1) More than zero, but only finitely many, humans have ever existed.
(2) If there was no first human generation – a first human or a tie for first – then for any human, there was a human who existed before.
(3) Necessarily, the *existed before* relation is one-way: If *x* existed before *y*, then *y* did not exist before *x*.
(4) Therefore: If more than zero humans have existed, and for any human there was a human who existed before, then infinitely many humans have existed. [From (3)]
(5) Therefore: There was a first human generation – a first human or a tie for first. [From (1), (2), (4)]

The premises are close to indisputable: (1) is common knowledge if anything is; (2) and (3) are conceptual truths. The inferences, (4) and (5), are clearly valid.

To my knowledge, Dawkins never says what might be wrong with this argument or with any argument resembling it. Instead, he says, the non-existence of a first human generation seems paradoxical only to those who fail to appreciate just how *gradual* a process is evolutionary change (Dawkins 2012: 41). But even a process that is as gradual as possible – viz. a *continuous* process – can cross a threshold. On the highly plausible assumption that space-time is continuous, a tree that grows from less than one metre tall to more than one metre tall passes through continuum-many different heights. Nevertheless, of course, the tree crosses the threshold for being at least one metre tall.

A biologist might be forgiven for failing to anticipate a philosophical criticism of his claims, even a biologist as eminent as the inaugural Simonyi Professor for the Public Understanding of Science at the University of Oxford. But it is harder to excuse an eminent philosopher, such as Daniel Dennett, who is aware of the criticism but whose answer to it persistently conflates the *existence* of a threshold with someone's *knowing* just where it occurs.

Seeing that the existence of a first generation implies a taxonomic division – a 'line' – between that generation and anything that came before, Dennett's response is this: '*We should quell our desire to draw lines*' (Dennett 2013: 241, italics in original). But the argument from (1) to (5), above, says nothing about *drawing* lines or even about a desire to draw lines. Instead, it shows that three clearly true premises jointly imply the existence of a first human generation: given those premises, the existence of the line is unavoidable, whether or not we could ever draw it where it belongs. A first human generation must have existed, whether or not anyone has any hope of knowing exactly when that generation lived.

Indeed, one might add this result to the indefinitely many other cases in which an objective fact escapes our knowledge, perhaps forever, such as Julius Caesar's mass to the nearest gram one second before he was stabbed on the steps of the Senate. Instead, Dennett says this:

> To deny this [i.e. the existence of a first mammal], philosophers sometimes say, is to confuse metaphysics with epistemology: the study of what there (really) *is* with the study of what we can *know* about what there is. I reply that there may be occasions when thinkers do go off the rails by confusing a metaphysical question with a (merely) epistemological question, but this must be shown, not just asserted. (Dennett 2013: 243)

As for showing: it is clearly a confusion to make the *existence* of every line hostage to someone's knowing where to draw it.[4]

Objections

I will conclude by rebutting two potential objections to my argument not already considered.

No fact of the matter? One might object to my argument's assumption that there is always a fact of the matter about whether an individual belongs to one species rather than another. This objection implies that in some cases it is *neither true nor untrue* that a given individual is, say, a member of *Homo sapiens*. But that consequence is self-inconsistent. If it is neither true nor untrue that Hugh is a human, then it is not true that Hugh is a human and also *not* not true that Hugh is a human. The objection therefore tries to avoid the inconsistency in 'There was no first human generation', exposed by my argument, by embracing an even more obvious inconsistency.

No full membership? One might object that membership in any species is always a continuum without sharp thresholds. On this view, any member of any species is a member of *every* species to some degree measured by a real number strictly between 0 and 1. So any *Escherichia coli* bacterium, for instance, is human to more

than degree 0 (but not much more), and I am human to less than degree 1 (but not much less). With continuum-many degrees and no sharp thresholds, we can keep my ancestors' degree of humanity as close to (but less than) 1 as we like for as many generations back as we like, without having to admit the existence of a first generation that was human *tout court*.[5]

Dawkins appears to endorse something like this objection. He regularly exhorts us to overthrow what he calls 'the tyranny of the discontinuous mind' (Dawkins and Wong 2016: 343). He has no patience for

> those who wail, 'But there has to be *some* moment when the fetus becomes human.' No, there really doesn't, any more than there has to be a day when a middle aged person becomes old. It would be better – though still not ideal – to say that the embryo goes through stages of being a quarter human, half human, three quarters human . . .[6]

The ellipsis appears in the original text: Dawkins trails off before saying whether an embryo ever becomes fully human. But if an embryo ever *does* become fully human, then a sharp dichotomy must exist between the times at which the embryo is not fully human and the times at which it is fully human. Otherwise, at some time the embryo is neither fully human nor *not* fully human, which (as we saw before in the case of Hugh) is inconsistent, or at some time the embryo is both fully human and *not* fully human, which is even more obviously inconsistent. This dichotomy must exist even if embryonic development is a perfectly continuous process, just as a dichotomy must exist between the times at which a continuously growing tree is not yet a metre tall and the times at which it is at least a metre tall.

Therefore, in order to avoid both inconsistency and a 'tyrannical' dichotomy, Dawkins must hold that nothing ever becomes fully human: everything has a degree of humanity less than 1. Such a view, however, encounters serious

problems. First, it makes being fully human into an abstract ideal that can be approached but never reached, like a frictionless plane in physics. But an abstract ideal of species membership is exactly what Dawkins emphatically rejects in his attack on Platonic 'essentialism' (Dawkins and Wong 2016: 351–2). Second, in this case the ideal, unlike a frictionless plane, is incomprehensible. If *nothing* is ever fully human, then what *is* the ideal of full humanity that nothing ever attains? Does it require having nothing genetically in common with any other species? If so, then the ideal makes no sense at all in the context of modern biology. Denying anything full membership in its species therefore fails as a rebuttal to my argument.

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Notes

[1] On the assumption that Dawkins means this sentence to allude to the sorites paradox, he should have written 'ceases to be short and becomes no longer short'. Like ordinary usage, the sorites argument recognizes a distinction between 'not short' and 'tall'.

[2] Two of many examples can be found at <https://video.newyorker.com/watch/richard-dawkins-talks-with-henry-finder> and <https://www.youtube.com/watch?v=u7O7EfQpJcc> [last accessed 13 November 2018].

[3] A video produced by the U.S. Public Broadcasting Service (PBS) was, according to its narrator, inspired by Dawkins 2012. Referring to a graphic that reads 'THERE WAS NO FIRST HUMAN', the narrator declares that 'it's really a key to truly understanding how evolution works', <www.pbs.org/video/its-okay-be-smart-first-human> [last accessed 13 November 2018].

[4] The defects of verificationism are well known and need not be rehearsed here. Dennett's confusion of ontology and epistemology is persistent: see, e.g., the discussion of speciation in Dennett 2013: 245–6.

[5] Even so, there is no avoiding *all* sharp thresholds. An argument similar to the one I gave shows that there must have been a first organism (or a tie for first), given that more than zero but only finitely many organisms have ever existed. In that case, the objector must concede the existence of a first generation that was human to some non-zero degree.

[6] Richard Dawkins, 'Essentialism', <www.edge.org/response-detail/25366> [last accessed 14 November 2018]. I do not know why Dawkins inserts 'though still not ideal'. One possibility is that he denies that *being human* is a genuine status that something can approach to any degree, let alone fully have. But this denial would conflict with the countless times in his writings and oral remarks where he uses 'human' as a referring expression.

References

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