Review of: "Evolution Isn't Teleological, Writing About it Is"

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This manuscript explores a well-known paradox. The late Michael Ruse devoted an entire book to it—which is, unfortunately, not mentioned in the manuscript: *Darwin and Design: Does Evolution has a Purpose*? (2003).

On p. 8, he introduces the topic of that book as follows: "This then is the paradox to which *Darwin and Design* is directed. Darwin seems to have expelled design from biology, and yet we still go on using and seemingly needing this way of thinking. We still talk in terms appropriate to conscious intention, whether or not we believe in God. In biology, we still use forward-looking language of a kind that would not be deemed appropriate in physics or chemistry. Why is this? And what does it say about the way we humans think?"

It can also be formulated as follows. Like science in general, evolutionary biology is concerned with developing non-teleological or mechanistic explanations of nature but …

(1) not only is goal-directedness an important part of the behavioural repertoire of several species, including our own, but there are also many biological phenomena that can easily be interpreted in teleological terms because they are apparently goal-directed or teleonomic and

(2) it is impossible to avoid teleological language, especially with regard to teleonomic phenomena, because of the nature of human language, including narrative language, and ultimately because of our instinctive tendency and preference to think in teleological terms (theory of mind).

The manuscript distinguishes four types of teleology in colloquial science (section 2) and focuses on the impossibility of avoiding teleological language (section 5), due to the nature of human language (section 3) and narrative language in particular (section 4). This is the reason why it focuses on colloquial science books: if teleological explanations and descriptions are inevitable, not for scientific or metaphysical reasons but for "discursive ones," then such "discursive" books that aim to engage and entertain readers (with teleological language and narratives) make excellent study material. To be honest, I don't know if this is a good approach: shouldn't one rather focus on less discursive books to really prove the idea that teleology is inevitable because of discursive reasons?

The manuscript is informative and claims to be original because it unites "several threads of scholarly literature," some of which "haven't been applied to this topic before, like the cognitive science of animacy detection, narratology, and the linguistics of agency." My perspective is more that of the history of evolutionary biology, so I cannot judge whether it is indeed sufficiently original to be accepted as a new contribution to the literature. However, such an interdisciplinary

approach is certainly commendable.

As said, teleology is probably a crucial component of the 'language of thought' or 'mentalese' (Jerry Fodor, Steven Pinker) that inevitably seeps into its audible or visible expressions, better known as (oral or written) ‘language’. [This raises all sorts of interesting questions (why is it a crucial component of mentalese, how does it seep into language, does it seep into some languages more than others, can this seepage be prevented, ...?), albeit questions that are somewhat tangential to the subject of the manuscript.] Consequently, I find the claim that teleological explanation is compulsive because of features inherent in written expression somewhat unfortunate: that is the *proximate* reason why teleological explanations are compulsive, the *ultimate* reason must be sought in the ‘language of thought’ and the social brain hypothesis (human cognition is largely an adaptation to living in complex groups; we understand and manipulate other members of the group by assessing their goals and intentions). Also, shouldn’t the author at least mention the possibility that some languages are less teleological than others? At present, the manuscript assumes that there is only one language: English.

From the specific perspective of the recent and more distant historiography of evolutionary biology, the manuscript is not very original—but that doesn’t have to be problematic—nor is it without flaws. Or, to put it more constructively, from this perspective, there is definitely room for improvement.

Crucial publications such as Ruse's book or Thomas Nagel's *Why the Materialist Neo-Darwinian Conception of Nature is Almost Certainly False* (2012), an Aristotelian plea for 'natural teleology', remain unmentioned. Correlation is not causation, but it is perhaps no coincidence that the second sentence of the manuscript is already very problematic: “Darwin and Wallace, by explaining the history of life as being without purpose and marked instead by chance and contingency, thereby annihilated teleology in nature.” The opposite of a teleological explanation is a mechanistic or cause-and-effect explanation, not (necessarily) one that attributes everything to chance and contingency. Darwin and Wallace did not, in fact, explain the history of life as being determined by chance, but by a combination of chance and necessity (random variations combined with the selection of those variations that lead to higher reproduction). Monod's 'le hazard et la nécessité'.

A few sentences later, I read: “A few modern biologists, just as secular as the celebrity Dar-winians, actually honour Darwin (and Wallace, when they remember) for bringing teleology into the scientific fold. In this version, natural history is still contingent, but the astonishing complexity of living things is a testament to their ability to achieve goals; unlike rocks and stones, trees manage to survive and reproduce thanks to a non-supernatural teleology.” There are two problems with this claim.

First, contrary to the impression given by the reference to 'some modern biologists', some of Darwin’s contemporaries were already doing this, while others welcomed his *On the Origin of Species* for the opposite reason. For example, Thomas H. Huxley wrote in 1864: “That which struck the present writer most forcibly in his first perusal of the ‘Origin of Species’ was the conviction that Teleology, as commonly understood, had received its death-blow at Mr Darwin’s hands.” In contrast, his American ‘bulldog’, Asa Gray (1876), wrote of “Darwin’s great service to Natural Science in bringing it back to Teleology; so that, instead of Morphology *versus* Teleology, we shall have Morphology wedded to Teleology.” Darwin

agreed in a letter to Gray: “what you say about teleology pleases me especially.”

Gray believed that, with Darwin, ‘purpose’ came to the front again as a working principle. If it did not “itself imply design, it is certainly compatible with it, and suggestive of it.” He argued that rather than undermining the idea of design, natural selection could be seen as the means by which a Creator brought about the diversity and complexity of life. He saw no contradiction between evolution and the idea of a purposeful God (so his ‘teleology’ differed from the teleology of those ‘modern biologists’). In this sense, Darwin’s work offered a way of thinking about biological processes that was compatible with teleological views, where the outcomes of evolution could reflect divine purpose.

Darwin wrote a lot about adaptations and used teleological language in this respect, whereas the morphologists did not (in this sense too, he brought natural science back to teleology). However, with his natural selection, he also developed a mechanistic interpretation of adaptations that was not necessarily a tool for the Creator to bring about the diversity and complexity of life. That is why Huxley believed that he had dealt a deathblow to (external) teleology, “as commonly understood.”

A second problem is the claim that “the astonishing complexity of living things is a testament to their ability to achieve goals; unlike rocks and stones, trees manage to survive and reproduce thanks to a non-supernatural teleology.” A tree doesn’t have conscious goals. It only functions or behaves *as if* it has goals. The astonishing complexity of living things is not a testament to their ability to achieve goals but something that we find very difficult to distinguish from designed, complex human artefacts (which are designed with a specific goal). That is the reason why they seem like teleological entities, not (necessarily) because of their ability to achieve goals. This—i.e., apparent teleology—is the referent of the term ‘teleonomy’, which is unfortunately only mentioned passingly in this study. An unmentioned publication that is very relevant in this respect—and to the manuscript in general—is ‘Teleonomy: Revisiting a proposed conceptual replacement for teleology’ (2023).

The definitions of external and internal teleology contrast with the illustration of this dichotomy. “External teleology concerns a larger purpose or goal governing the course of the world, typically a divine intelligence. Internal teleology is about a particular person, organism, or part of the world that has a goal or end towards which its actions are directed.” Versus (more accurately in my opinion): “In the Platonic mode, there is a design to the universe put there by some rational being such as a universal Mind or the demiurge. The Aristotelian notion of telos, however, concerns a goal or end inherent in a thing’s nature; the thing exists for the sake of that goal or end.” I also thought that Aristotle and Plato were at the origin of this dichotomy. If that is true, then you cannot use their work as a mere illustration of the dichotomy.

One can indeed make an additional distinction between intentional and non-intentional tele-ology. However, if one defines ‘teleology’ in the strict sense as something that is truly intentional (i.e., planned or carried out with conscious awareness and purpose), then the phrase ‘intentional teleology’ becomes, of course, a pleonasm and its antonym a contradictio in terminis. In this case, the correct dichotomy is that between literal teleology and metaphorical teleology. One can also distinguish between teleological phenomena as explananda and teleological phenomena as explanantia. God can, as a teleological being, be an explanans, but the seemingly goal-directed behaviour of a spider is an explanandum. Finally,

contrary to what the author claims, a conceptual taxonomy is not ‘better’ because it is derived from the set of texts one reads. On the contrary, such a taxonomy can be misleading.

The idea of the heat death of the universe can be expressed in teleological terms, but there is nothing teleological about it. Rather, it is an inevitable result of (presumed) natural forces. Like a supernova or death through senescence. Put differently, talk about the heat death of the universe can be an example of ‘non-intentional teleology’ but not of ‘intentional teleology’.

Similarly, in her book *Sacred Depths of Nature*, Goodenough explores the idea that the processes of nature, from the origin of life to the evolution of complex systems, exhibit a kind of 'purposefulness', but I am not sure that this exemplifies an intentional external teleology. Idem ditto for Robert Wright's Nonzero: does he really promote a teleological view of evolution (in the strict sense of the word 'teleological')? Is it not more accurate to say that he is putting a mechanistic, non-intentional process into teleological terms? And is this not true of all non-religious 'evolutionary epicists'? The two examples of internal intentional teleology are only truly teleological in a very limited sense. Kauffman is right that organisms shape their environment for their own ends, but relatively few do so consciously and truly intentionally.