

The Trouble with Teleology

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Organisms have goals.

What could be more obvious than that?

As humans, we have an inner world of intentions and desires, and we constantly attempt to realise our projects in the world (such as finishing a PhD). When we interact with our pets, we can be quite sure that they have desires as well - some similar to ours, some different. Intellectual pursuits or career achievements might not be their cup of tea, yet they certainly want a nice meal, good sleep, and plenty of attention! Although we as humans pursue goals and enjoy speculating about the intentions of others, the study of goal-directedness (called *teleology*) has a bit of a dubious reputation in the philosophy of biology.

How did that happen? Why is teleology often met with a skeptical attitude?



Firstly, teleology is historically associated with *creationism*, the dominant theory to explain why species are the way they are before the days of Darwin. Natural theologians have argued for a long time that the intricate functional design of organisms counts as a proof that they cannot be anything other than the product of intentional design. In contrast to this, Darwin's theory of natural selection (1859) taught us how complex organisms have evolved from simpler forms without the assumption of purposeful planning. A truly scientific explanation, many since believe, needs to rely on *mechanisms* instead of purposes: Science is not about the why, but uncovers the how (Toepfer 2005, 38).

Secondly, philosophers in antiquity have already suspected that teleological explanations get causality weirdly backwards: When we say that "eyes are made to see", aren't we making the strange assumption that the effect (being able to see) somehow brought about its cause (the existence of eyes)? At this point, Darwin can again help us (Toepfer, 42): According to the theory of natural selection, organs such as the eye have evolved because the ability of vision has given organisms a selective advantage. No backward causation is required in an adaptive explanation like this. So does that mean that teleological thinking in biology is a thing of the past? In some sense, yes, but not entirely. We still want to know what differentiates *living beings* from merely physical objects like stones, and the key to this distinction is to be found in the functional structure and the goal pursuit of organisms. Being alive means that numerous bodily processes function (more or less) harmoniously so that an organism as a whole can pursue goals such as surviving and reproducing (and in the case of human persons, even consciously reflect about one's own goals and values). Although physics favours mechanistic over functional explanations, the latter remain adequate for the self-organising processes that are characteristic for phenomena of life.

Rather than forcing us to deny this, evolutionary biology offers us the tools to *understand* how the functional structure of organisms came into existence (Toepfer, 48). In unison with philosophical action theory, which reflects on our human ability to consciously plan and realise intentions in the world (Quante 2019), we can now work towards a better understanding of what goal-directedness actually is: Not a spooky supernatural phenomenon, but an irreducible aspect of complex forms of life.

Recommended reading:

Georg Toepfer: *Teleologie*. In: „Philosophie der Biologie“, Hrsg. von Ulrich Krohs & Georg Toepfer, Suhrkamp, Frankfurt am Main, 2005.

Quante, Michael. *Philosophische Handlungstheorie*. Wilhelm Fink Verlag, Paderborn, 2019.