

OFF-TRACK PROCESSES. Let a certain historical (evolutionary) process select for a feature F . By assumption, F grants better chances of survival and reproduction (=better fitness Φ):

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$$(6-1) \quad P(\Phi | F) > P(\Phi | \sim F).$$

But that does not imply that F also grants better access to truth. So having F does not explain your ability to track truth, if you have such ability in the first place.

Generally, a set Γ of beliefs is on-track if it satisfies the 'Milvian bridge' principle. Γ must be in a relation R to a certain set X of facts of the world in such a way as accepting and acting on Γ is reasonable *because* of that relation $R(\Gamma, X)$.



So, for example, religious beliefs may well increase fitness, whether of individuals or of a group. But these beliefs are off-track (to truth). What explains their fitness value is not their capturing how the world is, but their influence on the group psychology or individual psychology of belief-holders. They can make the group more homogeneous or improve its reproductive capacity, they can make individuals more resilient in the face of adversity. What explains the fitness value of religious beliefs is not the relation R to worldly facts, but some other relation to the facts about the community.

According to Wilkins, it is different with science. Scientific beliefs *are* on-track. We need to see exactly why.

Remark 1. The formulation and application of the Milvian bridge principle requires a lot of tightening...

UMWELT-BELIEFS ARE ON-TRACK. Wilkins' argument is not altogether clear. He seems to begin by assuming scientific realism (see the Hacking quote). *Given* scientific realism, the task is (seems to be) to explain our scientific beliefs in the light of evolution. So the argument seems to be this: our science *is* correct/true, but we need to explain our amazing scientific success in a way that is respectable from an evolutionary point of view.

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Hence the project seems to be a kind of a transcendental deduction of science in the light of evolution. It is not clear to me why we should grant realism as a first step. The danger is to have a question-begging argument. Indeed, at different points in his discussion Wilkins seems guilty of exactly this fallacy.

In any case, we begin with the claim that our everyday beliefs are on-track. But why? Amazingly, Wilkins says that they track truth because they are 'instrumentally correct'. This is a jarring admission. The critic may well counter that *Umwelt*-beliefs track instrumental success, fitness, but no truth. In fact, they may track certain types of falsehoods, so far as false beliefs may prove useful to a particular type of organism, in a particular type of environment. An organism may be equipped with very imperfect, but cheap, sensory organs that allow him to navigate the environment efficiently—living long enough to leave healthy posterity. Instrumental success, generally, means fitness success. So all we are saying, then, is that evolutionarily fit beliefs are useful—a near tautology.

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Echoing Quine, Wilkins says that, 'beliefs that are wrong get their bearers dead or injured.' But all he is entitled to say is that beliefs that are *not useful* injure or kill you. Indeed, beliefs that are true may also injure or kill you! This is reflected in a story about Thales of Miletus who fell into a well whilst calculating the Solar eclipse (I think).

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Wilkins, of course, is anxious to contrast religion and science. Religious beliefs are social-tracking and psychological-tracking, but not truth-tracking. This claim only looks plausible because it is made from within a secular context. A believer may well say that evolution (instituted by God) has shaped reason not so much as to cope with *Umwelt* or multiply worldly goods, but to comprehend the word of God. Understood this way, reason is truth-tracking, because it enables one to navigate the world to come. This argument can't be undermined simply by rejecting the premisses: 'Hey, there's no God, and no afterlife either!' Such a critique will be question-begging.

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Truth-tracking beliefs: instrumentally correct in their lives.

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Social and asocial organisms: truth-tracking versus social-tracking

SYSTEMATICALLY FALSE ADAPTIVE BELIEFS. Wilkins is perhaps on a stronger ground attacking Plantinga's cuddly-tiger argument. On the face of it, Plantinga is sketching a coherent scenario, which, however, requires an *ad hoc* string of remarkable coincidences. However, Plantinga's opponent has a problem: is he supposed to rule out, in principle, beliefs that are uniformly false, yet also uniformly adaptive? There are two issues here I want to mention. 23

First, there is the 'interface' metaphor: what if our beliefs about the external world are like our beliefs about the icons on the computer/table desktop? Underneath the icons there is a reality wholly unlike what we believe. Essentially this is a *Matrix* scenario. Note that this does not lead to structural realism. There is no sense that we capture what the structure of the hardware or of the *Matrix* is merely by moving the icons or going to Neo's office.

Second, why to say that *Umwelt*-beliefs are truth-tracking? They are adaptive, yes. But so are the beliefs of any other surviving species. Yet it doesn't follow that the *Umwelt*-beliefs of a fly (if there are any!) track the truth. What they track is 'danger', 'food', 'sex' etc., in a very dim kind of way. Why be so cocky about human *Umwelt*-beliefs?

FROM COMMON SENSE TO SCIENCE. The problem is presumably that we have no adaptation for higher-order sciences. So to defend the adequacy of those sciences in the light of evolution you need to show the continuity between common sense and science. Curiously, it is not science that vindicates common sense, but the other way round. That's surprising, to say the least!

Anyway, Wilkins seems to ignore this task. He is more concerned with the process of matching theories and observation. But this doesn't touch on the problem of debunking. Nor, emphatically, does it refute any anti-realist take on scientific success. 25

DARWIN AGAINST DARWIN. Monkey brains evolved to deal with *Umwelt*. Metaphysical claims are not claims about *Umwelt*. So, monkey brains didn't evolve to form correct metaphysical beliefs. 30

But Darwin's worry can easily be paraphrased for higher reaches of science that, just like metaphysics, does not have claims about the *Umwelt*.

Science is immune to EDAs, because, unlike religion, it is sensitive to evidence. *A non sequitur?* 33