

RESTATING THE PARADOX. Millikan interprets the sceptical paradox as a demand to provide justification for the standard of meaning from which a particular use can diverge. The notion of standard involves normativity: one *must* conform to the standard. But this conformity itself involves the idea of a purpose. When I try to follow a rule, I have it as a purpose the rule following itself. So whether my following the rule is right or wrong depends on whether it is in agreement with my purpose.

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To have a purpose can mean that you represent it in your mind. But achieving that purpose X, engaging in a purposeful activity where the purpose X is represented, requires another purposeful activity—namely, trying to achieve X. This latter purposeful activity is characterised by the purpose Y. If Y itself is represented, then we enter a regress. So Y should be an ‘unexpressed’, implicit purpose, and we have to understand what the nature of following an unexpressed purpose is.

Here we simply paraphrase the sceptical paradox. Let adding two numbers with the function Plus be our purpose X. Then to follow Plus, rather than Quus, is another purpose Y. But if we now explicitly follow the rule for Plus, then Y becomes an explicit purpose, in turn to be interpreted by an unexpressed purpose. The regress sets in: at every turn we are no closer to an explanation.

UNEXPRESSED PURPOSES. There are three ways of following the rule. (i) Your action can merely coincide with the rule, in the way that requires no explanation (unless, perhaps, you do so repeatedly on many occasions). (ii) You may have an explicit (represented) purpose of following that rule. (iii) And you may have an implicit purpose of following the rule. In the latter case your success will show your competence with following the rule. So the task is to say what this competence is.

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Millikan now claims that unexpressed purposes are in fact biological purposes. Given what was said before, this means that the competence to follow that purpose is a biological competence. It is an evolved adaptation of the organism. Using a particular function, such as addition, is of course not innate (you need to learn it). But it is your innate capacity to learn it. (Compare the example of chicks and imprinting—a classical example from ecology.)

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HOVERFLIES. Male hoverflies are ‘evolutionary programmed’ to intercept female hoverflies in flight. However, their chase is triggered not only by actual female flies, but also by any objects perceptually (for them) similar the females. This simple setup allows us to draw a central distinction (we can safely ignore the mathematical details, such as angular velocity etc.). The male hoverflies have a distal rule of intercepting females. But they also have the proximal rule of intercepting any female-looking objects (dried peas will do). In following this rule male hoverflies improve their biological fitness (that is, increase the chances of their reproductive success). So conformity to this rule is a biological purpose of the organism.

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Furthermore, we say that hoverflies show competence in following this rule when their behaviour can be given a normal explanation. Such an explanation will contain reference to the mechanisms in the given organism that evolved specifically to achieve the biological purpose (here: intercepting females).

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Having claimed this, we can now also say that there are, and have been, multiple proximal rules that a male hoverfly has followed. Suppose that, according to the ‘normal’ behaviour, when a female approaches a male, the male reacts in a certain way ψ (characterised by an angle of his turn etc.). Suppose now that no female has ever approached a particular hoverfly in a certain way ϕ (characterised by angular velocity etc.). Then we can have a qu-rule:


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(15-1) If the female does not approach you in the way ϕ , behave in the way ψ . Otherwise stay put.

The behaviour of our hoverfly conforms to the rule (15-1), yet it is not the hoverfly's biological purpose to follow that rule. As a preview of the solution of the sceptical paradox, we can now say that following the rule when it is determined by a biological purpose is essentially different from merely conforming to the rule. 334 335

DISTAL RULES. Why did the hoverfly track images on his retina? Why did he give chase to peas, as well as to females? Obviously because these chases are *means* for intercepting females. We can formulate a 'distal rule': 335

If you observe a female, intercept it (her).

The distinction between proximal rules and distal rules is parallel to the distinction standard in biology (though often challenged) between proximate causes and ultimate causes. A particular adaptation, such as chasing behaviour, confers an evolutionary advantage. This is its ultimate cause. But then there are also mechanisms within a particular organism that enable it to engage in this kind of behaviour. 

In conforming to the distal rule the hoverfly must conform to the proximal rule. The reverse does not hold: in conforming to the proximal rule the hoverfly often does not conform to the distal rule. This conformity would depend on many other factors. Still, conforming to that distal rule is the hoverfly's biological purpose. 336

Furthermore, biological purposes can vary from individual to individual. Events in the individual's past history, such as rat's exposure to soap, can explain the individual's current behaviour. However strange this behaviour may be, we need not assume that it is perverse (unnatural). 339

A NATURALIST RESPONSE TO KRIPKE. A lengthy excursus into evolutionary explanation ends with a rather short response to the sceptical paradox. The question, as reinterpreted by Millikan, is: 342

Should ordinary human actions, such as addition, be described as quus-actions, according to the theory of evolutionary design?

The answer is no. First, we have to insist that plus-actions fulfil biological purposes. What you do when you do arithmetic is determined by your evolutionary design combined perhaps (as in the case of rats and circus dogs) with your individual history. Second, suppose that in fact people *regularly* engaged in quus-actions. Then these actions would only be intelligible as an accident completely divorced from your biological purposes, and therefore, at odds with your nature as a biological organism. 343 342

But now, how do we get to decide that meaning Plus *does* conform to the biological purpose, whereas meaning Quus does not? This question, Millikan argues, belongs to psychology. So the solution, as I see it, is not to say outright that we mean Plus rather than Quus in our arithmetical dealings. Meaning Plus, if it is a rule at all, is a proximal rule. There is, however, a level of a distal rule that we have to conform to in our meaning Plus or meaning Quus. 344

Thus the choice between Plus and Quus is not arbitrary. It is determined by our biological purposes—that is, by the fact that we are biological organisms characterised by such purposes.