

# Fodor on Adaptationism

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In a recent paper, Jerry Fodor argued that explanations of phenotypes in terms of their selection histories are not nomological and “don’t claim or even aspire to be”: adaptationist explanations are species of historical narratives. What is more, even if adaptationist explanations were true causal explanations, nothing would warrant the transition from a functional theory that explains behavior in terms of its function to a psychological theory that explains behavior in terms of intentions. In other words, evolutionary psychology is a nonstarter. The reduction to selection of evolutionary psychology in general and of intentionality in particular won’t work. The present paper gives the gist of Fodor’s argument minus some of the technicalities. It is intended not as a substitute but as an incentive to consult Fodor’s own paper.

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Despite vociferous claims to the contrary (Dawkins, 1989, 1996; Dennett, 1996), hard evidence for the explanatory power of Darwinian adaptationism is scarce. Belief in the “modern synthesis” rests on (at least) three acts of faith:

- 1 While adaptationism may account for changes in finch beak size, the belief that it also accounts for how finches arose in the first place is an empirically unwarranted extrapolation, an act of faith.
- 2 Belief in the objectivity of the randomness of “random mutations” requires the support of another act of faith.<sup>1</sup>
- 3 A scientific theory is supposed to make predictions, rather than merely tell post hoc stories. For adaptationism to be a scientific theory, there have to be laws enabling it to predict, in principle, for every possible phenotype and every possible environment, whether or not the phenotype will survive, or for every possible trait, every possible phenotype in which the trait is embedded, and every possible environment, whether or not the trait will be selected. At the very least, adaptationism ought to be in a position to predict, in principle, the probabilities of the possible outcomes. Belief in the existence of such laws requires an act of faith of rather epic proportions.<sup>2</sup>

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1 The objective randomness of measurement outcomes in quantum mechanics must not be invoked in this context. Quantum mechanics has so-called “no-go theorems,” which imply a genuine randomness. A theory that lacks such theorems can establish lawfulness, but it cannot possibly demonstrate randomness.

2 Even if such laws existed, the situations to which they would apply (not to speak of the laws themselves) would be far too complex to either prove or disprove them.

Enter Jerry Fodor (2008). Speaking as a metaphysical naturalist and “a fully signed up atheist,” Fodor nevertheless arrives at the conclusion that “there is something seriously wrong with adaptationism.” What follows is what I perceive as the gist of his argument, stripped of some technicalities. The present paper is intended not as a substitute but as an incentive to read Fodor’s paper, henceforth referenced as “FAD.”

We humans have intentions. So, perhaps, do frogs. Those who are unwilling to attribute intentions to frogs are advised by Fodor to proceed up the phylogenetic ladder until they are comfortable with the association of intentions with behaviors.

Hence the question arises as to whether adaptationism accounts *only* for the fly-catching behavior of frogs or *also* for the *intention* of frogs to catch flies.

Nature (as in “natural selection”) doesn’t “care” a damn about intentions. It selects behaviors. Even if the transition from an adaptationist theory that explains the frog’s behavior in terms of fitness to a functional theory that explains the frog’s behavior in terms of its *function* is warranted, the transition from a theory that explains the frog’s behavior in terms of its function to a psychological theory that explains it in terms of intentions is not. With this, evolutionary psychology (EP) goes out the window.<sup>3</sup>

A selectionist evolutionary biologist

might be willing to live without a selectionist evolutionary psychology so long as there’s no implied threat to adaptationism per se. When the weather gets rough, there’s an understandable temptation to lighten ship by throwing the psychologists overboard” (FAD).

But this doesn’t help. If selectionist evolutionary psychology sinks, so does selectionist evolutionary biology. To see why, consider the difference between *selection* and *selection for*. It is one thing to select creatures that are in possession of a given phenotypic trait, but it is quite another to select creatures *for* having that trait. If individuals with trait A have been selected, is it the case that they have been selected *because* of their having trait A? If they have been selected *tout court*, then their being A was not causally involved in their having been selected, and there is nothing for adaptationism to explain. Adaptationism asserts that they have been selected *for* their being A, i.e., that their being A was causally involved in their having been selected.

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3 Good riddance to bad rubbish. In the wake of neo-Darwinism, science appears to have descended to the level of soap opera. Under the mantle of evolutionary psychology, it has brought us titles such as *The Evolution of Desire: Strategies of Human Mating* (Buss, 2003), *Ever Since Adam and Eve: The Evolution of Human Sexuality* (Potts & Short, 1999), and *The Dangerous Passion: Why Jealousy Is as Necessary as Love and Sex* (Buss, 2001). Another such book, *A Natural History of Rape* (Thornhill & Palmer, 2000), describes rape as “a natural, biological phenomenon that is a product of the human evolutionary heritage,” akin to “the leopard’s spots and the giraffe’s elongated neck.” Not long ago a Princeton University professor published an article defending bestiality, insisting that “sex across the species barrier. . . ceases to be an offence to our status and dignity as human beings.” And in the wake of the Columbia disaster, in an article in the *Science Times* (Goode, 2003) reflecting on the fact that we are moved more by the deaths of individuals than by statistics, we were assured that “emotions, developed to enhance the species’ survival, keeping early humans one step in front of hungry lions, sometimes mislead in the modern world.”

So what does it *mean* for a phenotypic trait to be causally involved in the selection of individuals having that trait? Fodor mentions two options, which he considers exhaustive. He is even prepared to wager moderate sums on their being exhaustive. I don't think he will lose. In his (2008), Fodor argues that "neither of them has a prayer of working."

### First option: *Mother Nature*

There is an obvious analogy between what natural selection does when it culls a population and what breeders do when they select members from a population.

Suppose Granny breeds zinnias, with the intention of selling them on Market Day. Then Granny is selecting zinnias for their value on the market, and not, say, for the elaboration of their rootsystems. This is so even if, as a matter of fact, it's precisely zinnias with elaborate root-systems that sell at the best prices. . . In short, since Granny is in it for the money and not for the roots, there is a matter of fact about what she selects for when she selects some of the zinnias and rejects the others. What Granny selects for is: whatever it is that she has in mind when she does her selecting. (FAD)

What does Nature select for? Whatever she has in mind when she does her selecting?

That, surely, is the thought that explains the prominence of anthropomorphized avatars of natural selection in the EP literature: Mother Nature, The Blind Watchmaker, The Selfish Gene. . . [T]he tactic of resorting to scare quotes when push comes to shove (as in "what natural selection 'prefers'," "what Mother Nature 'designs'," "what the selfish genes 'want'," and so forth) can make it hard to tell just what is being claimed in some of the canonical texts. Still, there are plenty of apparently unequivocal passages. Thus Pinker (1997, p. 93): "Was the human mind ultimately designed to create beauty? To discover truth? To love and to work? To harmonize with other human beings and with nature? The logic of natural selection gives the answer. The ultimate goal that the mind was designed to attain is maximizing the number of copies of the genes that created it. Natural selection cares only about the long-term fate of entities that replicate. . ." Fiddlesticks. The human mind wasn't created, and it wasn't designed, and there is nothing that natural selection cares about. (FAD)

Only agents act out of their intentions, and natural selection isn't an agent (at least not the way it's advertised).

### Second option: *laws of selection*

Consider another difference: that between a true empirical generalization and a law of nature. As a law of nature, "all crows are black" is true by nomological necessity. As an empirical generalization — a proposition that appeared to be true when first stated and has become consolidated by repeated successful testing — "all crows are black" does not warrant the prediction that the next crow will be black. As a natural law, it does.

Is there a trait or complex of traits T that is selected (in competition with other traits or complexes of traits) *in virtue of* its being a T? Given the context-sensitivity implied

by the very concept of “adaptation,” there’s no way the answer could be affirmative. There isn’t any T that is selected merely in virtue of its being T, *regardless* of the environment and *regardless* of what phenotype it’s embedded in.

*Objection:* The laws of physics are of the form “if this then that.” If “this” is the distribution and motion of charges, then “that” is the acceleration to which a test charge is subjected (Maxwell’s equations and the Lorentz force law). If “this” stands for the flow of energy-momentum then “that” stands for the curvature of space-time (Einstein’s equation). If “this” stands for the outcome V of an actual measurement, then “that” stands for the probabilities assigned to possible measurement outcomes on the basis of V (quantum mechanics). We ought to think of the laws of selection in the same way, i.e., in terms of conditional propositions. T isn’t selected merely in virtue of being T. Selection is conditional: given an ecological niche N, T is selected in N in virtue of T’s being T and N’s being N.

The problem here is that T and N cannot engage with natural laws unless they are natural kinds. Is N a natural kind? Is it possible to define it in such a way that it can engage with a natural law? This depends on what is common to all members or instances of N. Well, what is common to all ecological niches of type N?

[A]ll they have in common is that some kind of creature or other, does or would, flourish in each. (FAD)

So can it be a natural law that creatures having trait T embedded in their phenotype flourish in niches of the sort that allow creatures having trait T embedded in their phenotype to flourish? Or, since what’s actually selected is phenotypes, can it be a natural law that creatures of phenotype P flourish in niches of the sort that allow creatures of phenotype P to flourish? Can a tautology be a natural law? You say.

Imagine a research program directed to explaining why each creature fits so precisely into the corresponding hole in space. Would the NSF be well-advised to fund it? (FAD)

As Fodor points out, “ecological niche” and “law of selection” are more or less interdefined:

there is an ecological niche for a phenotype with trait T iff it’s a law that, all else equal, phenotypes with T are at selectional advantage with respect to otherwise identical phenotypes that lack T. That being so, the claim that there are such things as ecological niches and the claim that there are such things as laws of selection must sink or swim together. (FAD)

If there are no ecological niches (qua natural kinds), then there can be no nomological generalizations about the mechanisms of adaptation.

Whether a trait is conducive to fitness appears to be just about arbitrarily dependent on which sort of creature it’s a trait of and what sort of ecology the creature inhabits. If that’s so, then there can’t be laws of selection. (FAD)

But if there are no nomological generalizations about the mechanisms of adaptation, then

the theory of Natural Selection reduces to a banal a truth: “If a kind of creature flourishes in a kind of situation, then there must be something about such creatures, (or about such situations, or about both) in virtue of which it does so.” Well, of course there must. (FAD)

### The upshot: *just-so stories*

So while (obviously) there are explanations of why competitions between creatures with different traits come out the way they do, “such explanations don’t work by subsuming the facts they explain under general laws about the relative fitness of the traits.” (FAD) Explanations of phenotypes in terms of their selection histories aren’t nomological and, according to Fodor, “don’t claim or even aspire to be. What they are is precisely what they seem on the face of them; they’re historical explanations. . . . Adaptationist explanations are species of historical narratives.” (FAD)

It’s not in dispute that competitions between creatures with different phenotypes often differ in their outcomes; and, of course, in each case, there must be some explanation or other of why the winner won and the loser didn’t. But there’s no reason at all to suppose that such explanations typically invoke laws that apply to the creatures in virtue of their phenotypic traits. (FAD)

Napoleon lost at Waterloo because it had been raining for days, and the ground was too muddy for cavalry to charge. So, anyhow, I’m told; and who am I to say otherwise? But it doesn’t begin to follow that there are laws that connect the amount of mud on the ground with the outcomes of battles. (FAD)

The reason historical-narrative explanations so often seem to be post hoc is that

they usually are. Given that we already know who won, we can tell a pretty plausible story (of the too-much-mud-on-the-ground variety) about why it wasn’t Napoleon. But. . . I doubt that Napoleon or Wellington or anybody else could have predicted the outcome prior to the event. The trouble is that there would have been a plausible story to explain the outcome whoever had won. . . . That being so, there are generally lots of reasonable historical accounts of the same event, and there need be nothing to choose between them. (FAD)

Diamond (2001, p. x) remarks that Darwin didn’t just present “a well-thought-out theory of evolution. Most importantly, he also proposed a theory of causation, the theory of natural selection.” Well, if I’m right, that’s exactly what Darwin didn’t do; a “theory of causation” is exactly what the theory of natural selection isn’t. (FAD)

I discover (why am I not surprised?) that if you really want to annoy your friends and relations, you should write a paper attacking evolutionary adaptationism. (FAD)

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