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Granny versus Mother Nature—No Contest

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Abstract: Fodor's doubts about neo-Darwinism are driven by something other than familiarity with evolutionary biology, so they should be set aside. His claim that a theory of intentionality cannot be constructed on an evolutionary foundation because there is no representation in the process of natural selection reveals that he has been blind to the chief beauty of Darwin's vision: its capacity to explain not just how the living can come, gradually, from the non-living, but also how meaning can come, by incremental steps, out of the meaningless.

I've been looking forward to seeing Jerry Fodor's reaction to my book, since his candidly avowed antipathy toward evolutionary arguments was one of the spurs for writing it. For instance, it was his abrupt comment to me in 1985 to the effect that Searle was right about robots lacking original intentionality that set me to writing 'Evolution, Error and Intentionality' (1987), and that contributed in turn to some of his recent outbursts against evolutionary approaches to these issues. Nothing clears the air quite so briskly as one of Jerry's jaunty tantrums. He is the master of blithe self-exposure, and on this occasion he is true to form: he reveals that his views are much more radical than I had realised; indeed, he reveals that they are much more radical than he himself has realised. Such huge disagreements cannot be resolved or even duly criticised in a few pages; the best course here is just to use Fodor's declarations to sharpen the contrasts. Figuring out 'who wins' can be saved for another occasion.

Fodor 'deconstructs' one of the main strands of argument in my book into three steps: (1) secure adaptationism against its critics; (2) show how it permits us to speak of biological functions (show how it grounds 'natural teleology', in his terms); and (3) use that concept of function as the basis for a functionalist theory of meaning or intentionality. So far, so good; that's just what I take myself to have done. He has doubts about all three steps, but is willing to suspend judgment on the first two and dig in his heels on the third. This is a retreat worth noting. In the old days, Fodor used to say that any bio-functional theory of meaning such as mine or Millikan's was hope-

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less *because* it was tantamount to adaptationism, which Gould and Lewontin had shown to be bankrupt. That myth about their essay on the spandrels of San Marco has now been exploded—and not just by me—so Fodor clasps a new authority to his bosom: Niles Eldredge. Not a good choice, since a close reading of the cited book (or even just page 48 of it) discloses that Eldredge, as a paleontologist, has almost nothing—aside from personal distaste—to contribute to the issue of the status of adaptationism, a message driven home in my book. Fodor still has his doubts about adaptationism, and about its underwriting of a notion of biological function, but he thinks that even if he's wrong on those two scores, he has a knock-down argument against my evolutionary theory of intentionality. I will turn to that argument shortly, but first I want to point out just how strikingly naive and ill-informed his comments on adaptationism and natural teleology are.

'It could turn out', he says, 'that many genotypes converge on much the same phenotype; or that only slightly different genotypes get grossly different phenotypic expression; or that identical genotypes get different phenotypic expressions in different contexts, etc.' Not only could it; it has. This is all elementary textbook genetics (and is all discussed in passing in my book). Fodor's remarks on the ambiguity of the notion of phenotypic expression, and his speculations about hidden constraints and genetic variation also bespeak a lack of familiarity with contemporary thinking in biology. Fodor does issue a disclaimer of expertise in this area, and says these are only his hunches. He may not know much about evolutionary theory, but he knows what he doesn't like.

He enlists Gould and Chomsky to float the suggestion that nothing we know yet rules out the possibility that gradual (or swift) change in brain size (or weight or whatever) could have as an adventitious consequence radical discontinuities in behavioural repertoire (hint: such as the sudden blossoming of a Language Acquisition Device). Right. And nothing we know yet rules out the hypothesis that given a few lucky mutations and a slight change in their diet, pigs may suddenly sprout wings or start spinning magnificent pigwebs for the first time in biological history. What continues to amaze me about this Chomskian theme is that having done so much to show that human language is *not* a simple noise-making behaviour but an intricate generative capacity that chimpanzees are not even close to being able to acquire, these very people can then turn around and ask, with straight faces, 'What makes you think the complexities of language have been *shaped by natural selection?*'

'We'll just have to wait and see how, and whether, our minds evolved. At the time of writing, *the data aren't in.*' He actually says this; I checked several times. In a way, of course, he's right: the data aren't in on the specific mechanisms and the specific histories of the evolution of our minds—and the same verdict holds about our knowledge of the evolution of, say, codfish, redwood trees, and deer ticks. But no sane biologist doubts that these marvels of nature evolved. There is as much reason to suppose that the behaviour-controlling capacities of the human brain evolved as there is to suppose

that the blood-flow-controlling capacities of the human circulatory system evolved.

But set section 1 aside, since Fodor grants that he may be wrong in his suspicions about adaptationism (which as we have just seen, are suspicions about evolution in general, not remotely related to the residual debates within evolutionary theory about the proper limits of adaptationism). In section 2, he turns to the question of whether Darwinism makes a safe place for teleological talk. Once again, I can hardly believe my eyes:

> What is *not*, however, available is the course that Dennett appears to be embarked upon: there was no designer, but the watch was designed all the same. *That just makes no sense.*

He seems not to realize that it is not just Dennett who embarks on this course; this is the standard understanding of biologists: of course there is design in nature, and of course there is no foresighted, intelligent designer. It makes beautiful sense. It's Darwin's point, for goodness sake. Darwin doesn't deny the existence of all the design Paley found in the biosphere, nor does he claim that it needs no explanation; he shows how the design can be there without there being a Designer. There are plenty of points in my book that I consider original, but on this score I did not take myself to be blazing a new trail at all; I was simply expounding textbook fare and drawing special attention to some of its well-recognized implications. Could Fodor be right and all those biologists wrong? The data aren't yet in, as Fodor would say, and in defence of his bold iconoclasm, he offers a sketch of an argument, relying on the principle that 'Appeals to being F can explain nothing that isn't equally well explained by appeals to being *G in a world where it's necessary that Gs are F.*' Fodor has a genius for composing First Principles that look great on the page until you try to fit them to received practice. This is one of his best. Since he sets it all aside for the sake of argument at the end of section 2, I am more or less enjoined not to bother mounting a detailed criticism of his argument here, so I will simply note in passing that since Fodor's Principle is, as he insists, *'entirely general,'* scientists who adopt it are going to have to give up a lot of their favourite explanations. For instance, because of a well-known 'nomologically reliable' correlation, there is no way to choose between the following two evolutionary hypotheses:

(1) Birds' wings evolved for flying.
(2) Birds' wings evolved for flapping.

In the world in which the birds evolved, it is necessary or at least 'nomologically reliable' that cases of flapping (of type G) are also cases of flying. It is a mistake to say that some wings are better for flying than others, for one could equally well say they are better for flapping-in-fitness-enhancing ways in that world. (In his footnote 9, Fodor alludes obliquely to the passage in

my book (pp. 407–8) in which I directly meet his challenge on this score. It's a shame he hasn't seen fit to engage my response in any detail, since it was aimed explicitly at him.)

Fodor goes on to say (echoing McGinn) that allegiance to his Principle allows you to deny that there is any difference, strictly speaking, between the 'evolution' of mountains and oceans and shadows on the one hand and the evolution of living things on the other. This is quite some Principle: in one fell swoop it purports to overthrow a century or so of work by physicists and biologists who thought they had long ago showed how living things can be distinguished from merely relatively stable things in terms of their exploitation of information. Well, perhaps they were wrong. Perhaps a deeper analysis of the residual worries and controversies about functional explanation will bring the entire edifice crashing down, with no way of reforming and saving it. Now we know what is at stake. On another occasion, it might be fun to tally up the costs and benefits of the choice on offer between Fodor's Principle and functional thinking in biology. Something has to give, and such a tally could help us to decide on which side of the fence to look first for confusion. Enough said, for now.

Now I turn to the *pièce de résistance*, in section 3. Fodor cleverly notes that there is a major difference between us and Mother Nature: 'Mother Nature is a *blind* watchmaker; . . . she *never* adopts (or rejects) a policy because of outcomes that she has *foreseen*. Whereas you and I do that sort of thing all the time.' Sure enough, that's the big difference, and Fodor doesn't seem to realize that I myself stress it. As I say at several points in several ways, we foresightful, reason-representing agents are johnny-come-latelies in the history of designing agents. Fodor puts more emphasis than I have done on an important point: 'Merely possible competitions don't enter into Mother Nature's calculations.' He is right, and I discuss this point only briefly, in the section called 'Playing with Constraints' (pp. 251–61, and more directly in a footnote on p. 279). Fodor now lowers the boom: *'Why doesn't this difference between her and us count as principled?'* Why not indeed? Consider it 'principled', just as principled as the difference between the living and the non-living. What difference could be more principled than that? Now what? Fodor finds another handy principle to invoke:

> You can't reduce intentionality to 'selection for' because *selection for doesn't involve representation.*

Silly me, I had thought that the fact that there was no representation in the activities of Mother Nature was precisely the feature that made it *possible* to 'reduce' our intentionality in an explanatory way to something mindless. If Mother Nature had a mind like ours, full of representations, she would be like the worst sort of homunculus, merely postponing any explanation of intentionality. It seems that Fodor is blind to the chief beauty of Darwin's vision: its capacity to explain not just how the living can come, gradually, from the non-living, but also how meaning can come, by incremental steps,

out of the meaningless. Darwin's metaphysical alchemy can build bridges between things that exhibit 'principled' differences, but the price you must pay for this perspective is abandoning essentialism. You have to discard the idea that there has to be a First Living Thing, a Prime Mammal, a simplest case of Original Intentionality. Fodor says:

> You can, in short, suppose that the whole (neo-)Darwinian story is true; and you can suppose that 'selection for' is intensional; you will not thereby have succeeded in supposing any representation into the world.

I entirely agree. For several billion years on this planet there was neo-Darwinian selection for this and that feature of the organisms that evolved, and hardly anything in sight worth calling a representation. What about DNA? Fodor himself allows that genes might count as having representational content, but rather than pouncing on this as a contradiction, I'll use it to make the Darwinian point. It doesn't matter really where we 'draw the line' between non-representations and representations. We know there was a period (a billion years or so) during which 'naked genes' evolved—genotypes that were their own phenotypes, genes that 'represented' only themselves, or if you prefer, molecules that didn't represent anything at all—any more than a pebble represents itself. And if the clothed genes that succeeded them also don't count in your book as having representational content, so be it. Some laxer folk might say these genes *specify* and even *misspecify* their intended phenotypes, but be as scrupulous as you like. Today there are lots of representations, by anybody's standards, and they evolved by a process that takes us from a world in which there is no representation, as Fodor says, to a world that is full of them. Representation itself had to evolve.

Fodor does not demur on this point—not quite: 'I hope you don't think that I think that the line of argument I've been pursuing shows that selection couldn't have *resulted in* intentional processes. Of course it could; or, anyhow of course it could for all that I know.' But, he says, he is not interested in the historical question, but the metaphysical question: 'what makes intentional things intentional?' He's looking for an essence.

My answer to Fodor's metaphysical question has two phases, as he has noted. I answer first by saying (to put it crudely for the moment): what makes an intentional thing intentional is its function. No mention of history *yet*. But if you go on to ask me how I know what its function is, if you ask me how I support my 'metaphysical' answer, I have to tell one historical tale or another. If the thing is an artifact of human engineering, I cite the relevant details of its R and D history and the contemporary 'history' of its current use; if a living thing, I cite its evolutionary history and current use. Nothing else is or could be relevant to its function. Which kind of history explains the birth of any particular instance of functionality is not the point (see Tolliver, 1995 and my reply, 1995, p. 552). The metaphysical point is that a functional thing is only identifiable as such within some such historical

context. To think otherwise is to indulge in the most obscurantist essentialism. Consider: suppose there was a universe that was empty (for all time) except for the existence of a single object, which just happened to be atom-for-atom indistinguishable from a lima bean. Would it *be* a lima bean? What do your essentialist intuitions tell you? (Mine are silent, or at any rate, I can't stop giggling long enough to consult them.) Now replace the lima bean with a cardboard placard on which is printed 'Cold Beer Sold Here.' Would it *be* a (false?) representation? History without metaphysics is just one damn thing after another, but metaphysics without history is too silly for words. Fodor goes on:

> And, according to commonsense (and according to me) it's representation that you need to explain intentionality.

I agree, but recalling the tale of the chap who said the Earth rested on the back of a turtle, which rested on the back of yet another turtle, I would add: representation is what is needed to explain intentionality, but not representation *all the way down*. My theory of intentionality explains the aboutness of representations, including their crucial capacity to be, on occasion, *mis*representations, but it comes at a price Fodor is unwilling to pay. You have to give up original intentionality and see that all the late, robust, representation-wielding varieties of intentionality, both the words on the shopping list and the mental images in your head, are artifacts, and hence have derived intentionality. As far as I can see, Fodor has no quarrels with my functionalistic theory of the derived intentionality of artifacts (maps, books, diagrams, computer programs, two-bitsers, . . .). So *if* human minds were artifacts, like robot control systems, he should have no trouble with my theory of intentionality. But he wants to hold out.

When I quoted him in 1987 (p. 288) as saying that Searle was right about computers and robots not having any original intentionality, it seems that I was misunderstanding him (and Searle). They are both prepared, Fodor now says, to countenance the possibility that a robot *might* have real original intentionality *in addition to* the merely derived, functional intentionality that sufficed to explain all its adroitness in the world. It would be mighty hard to discover such a bonus, of course, since nothing about the apparent cleverness of the robot would count in its favour: 'If it did, intentionality would supervene on behaviour and behaviourism would be true. Which it's certainly not.' I love it. One of Fodor's favourite myths is the idea he expresses so succinctly here: cognitivism is 'thoroughly modern mentalism'—you know, the *opposite* of behaviourism. Hey, didn't he and Chomsky round up Skinner and Quine and Ryle and Wittgenstein and all those pesky varmints and put them in a perfectly good corral way back when? Behaviourism is over! Haven't you heard?

Simple versions of behaviourism have been well and truly driven from the field, but once you see what non-behaviourism becomes in the hands of Searle (with his 'subjective ontology') or Nagel (with his scientifically inac-

cessible first-person perspective), the conclusion that beckons is that some version of behaviourism might not be so bad after all, and might even be the backbone of cognitive science. This conclusion may not beckon Fodor, but he can't keep it from beckoning others by just stamping his feet and saying that behaviourism is false. He can try, though.

In the end, Fodor says I misspeak when I declare that the only alternatives to my artifactual theory of meaning posit one skyhook or another. There are in fact lots of alternatives, he says: 'Some are eliminative and some are reductive; some are naturalistic and some aren't; some are emergentist and there are even one or two that are panpsychist.' An embarrassment of riches, one gathers, but which do not involve skyhooks? Of those that Fodor lists here, some manifestly do posit skyhooks: non-naturalism, panpsychism, mysterian brands of emergentism. As far as I can see, the others either deny the existence of intentionality altogether—eliminativism—or assert something that Fodor himself agrees to be hopeless—such as the various attempts at reductive views he has tried and then resolutely discarded in recent years.

Fodor's Granny, that doughty champion of common sense, believes in two Principles: no intentionality without representation, and no design without a designer. As long as God was in his Heaven, representing the representations in the creatures He had designed, these Principles looked pretty good, but while Granny has been dozing in her rocker, Darwin has come along with a better idea: Mother Nature, the non-representing designer of intentionality. Wake up, Granny.

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