

## ‘Encouragement in Darwin’?

It is often claimed, and even more widely simply taken for granted, that concern about the extent of our epistemic achievements is misplaced, given that we are the product of natural selection. Thus we have philosophers, not really arguing, but taking it to be more or less obvious, that we can find (in Quine’s phrase) “encouragement in Darwin” (1969: 126). For instance:

“[C]reatures inveterately wrong in their inductions have a pathetic but praiseworthy tendency to die out before reproducing more of their kind.”

*(Ibid.)*

“Natural selection guarantees that organisms either know the elements of logic or become posthumous.” (Fodor 1981: 121)

“Natural selection guarantees that *most* of an organism’s beliefs will be true, *most* of its strategies rational.” (Dennett 1981: 75)

“Perhaps we should agree with Descartes that the correct explanation of the rationality of our information processing system is to be found in a hypothesis about its origin. We then might speculate that if our cognitive apparatus is rational, this will be because it is an adaptation, having emerged by a process of natural selection.” (Sober 1981: 110)

The thinking behind these claims is, I think, homely enough. After all, one wants to say, if you can’t spot food, you don’t eat, and if you don’t eat, you die; if you don’t know a predator when you see one, you get eaten; if your induction strategies are

such that you are constantly forming false beliefs, you're in trouble, for surely it's *true* beliefs that help a creature survive and reproduce; and so on.<sup>1</sup>

As others have pointed out, however, attractive though it may be, such 'Darwinian optimism', and the thinking behind it, may be misguided. Arguments for a more pessimistic assessment of just how much 'encouragement' is to be found in Darwin typically take one of two forms.

First, there are those who argue that *a priori* considerations – that is, armchair thinking about what natural selection might be reasonably expected to have ensured, *vis-à-vis* our ancestors' (hence, our own) epistemic capacities – in fact suggest that it is not at all likely that natural selection would favor epistemically successful creatures – creatures whose cognitive capacities tended to garner them, more often than not, more true beliefs than false, more rational inferential strategies than irrational ones, etc. Darwin himself had worries along these lines: "With me," he writes, "the horrid doubt always arises whether the convictions of man's mind, which has been developed from

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<sup>1</sup>Of course, if one's concern is to assuage sceptical worries, this sort of argument won't do, given that in rehearsing this homely line one patently takes for granted the truth of certain beliefs and the reliability of one's belief-forming strategies. But even if such an evolutionary story cannot for this reason establish *that* the sceptic is mistaken, for those not concerned with answering sceptical doubts, it may provide an explanation of *why* we are epistemically adept. That this is how Sober, at least, intends his invocation of Darwin is clear enough in the above quote; it is clear too that this is Quine's intent as well -- see, e.g., Quine 1969: 127.

the mind of the lower animals, are of any value or at all trustworthy.”<sup>2</sup> After all, as Pat Churchland has memorably put it:

“Boiled down to essentials, a nervous system enables the organisms to succeed in the four F’s: feeding, fleeing, fighting and reproducing.... Truth, whatever that is, definitely takes the hindmost.” (1987: 548)

But it is Stephen Stich, perhaps, who has been the most vocal in countering “Panglossian optimism” (as he calls it). Among the observations/claims Stich marshals in support of a gloomier assessment are the following: that “natural selection doesn’t always have a go at the best option” (1990: 65); that “strategies of inference or inquiry that do a good job at generating truths and avoiding falsehoods may be expensive in terms of time, effort, and cognitive hardware” – too expensive, perhaps, to be over-all fitness-enhancing (*ibid.*: 61); that natural selection is not the only factor in evolution; and that there is, in any case, no reason to think that false beliefs – hence, unreliable inference strategies – can’t be just as adaptive as true ones. For instance, for an omnivorous creature living in “a gastronomically heterogeneous environment”, ‘false positives’ on the question of whether a given candidate food is poisonous might be pretty cheap (supposing there’s plenty of food about), and false negatives (for obvious reasons) very costly. In such a case, a highly risk-averse inference strategy – one that generated lots of false positives, but very few false negatives – might serve the creature better than a less cautious one. Such a strategy will not, of course, be very reliable. But

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<sup>2</sup>Letter to William Graham, July 3 1881. In Darwin (1887): 315-316; quoted in Plantinga (1993): 219.

Stich says (echoing Churchland), “natural selection does not care about truth; it cares only about reproductive success” (*ibid.*: 63).<sup>3</sup>

Now, there are ways of countering such claims and arguments. Thus, for example, one might reply to Churchland thus: patently, natural selection does not ‘care about’ noses *per se*; but if, given its local circumstances, having a nose renders a creature more likely to succeed in ‘the four F’s’, that might explain why certain creatures have them. And likewise for epistemic success: if such helps a creature to survive and reproduce, maybe – just maybe – that gives us reason to think that we wouldn’t be sitting here wondering whether we were reasonably epistemically adept unless *we were*.

And, to the Stichean arguments, one could reply, for instance, that although false beliefs, unreliable inference strategies, are *sometimes* advantageous, this does nothing to show that they’re good on the whole – better, or even as good as, true beliefs. It may be true that, “from the point of view of reproductive success, it is often better to be safe (and wrong) than sorry” (*ibid.*: 62). But it may be better still to be safe and right than sorry. No doubt, jumping to conclusions and subsequently ‘taking back’ certain beliefs – non-monotonic (default, defeasible) reasoning<sup>4</sup> – is often the way to go: always explicitly working things out in advance – scrupulously reasoning to all

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<sup>3</sup>For further arguments purporting to show that naturalists, anyway, should steer clear of Panglossian optimism, see Plantinga 1993: 222-237.

<sup>4</sup>On the need for (and nature of) default reasoning, see, e.g., Bach (1984) and Pollock (1986) and (1990).

one's beliefs -- is simply too 'expensive'.<sup>5</sup> Be that as it may, you need to know when to think twice. And if the imagined creature uses *too* risk-averse a strategy, it won't even leave its burrow (or whatever).

This is all really just a promissory note, of course, and not a knock-down reply to pessimism of the Churchland-Stich variety. But it is, I think, plausible enough to suggest that we at least may be able to resuscitate the optimistic argument.<sup>6</sup>

But there are, as mentioned previously, another class of arguments for the pessimistic conclusion. These arguments, in effect, are supposed to show that natural selection *can't* be such as to ensure the epistemic success of creatures. For we are such creatures ourselves; and we seem, if anything, to be all too irrational in our belief-forming processes.

On what Edward Stein has called 'The Standard Picture', "to be rational is to reason in accordance with principles of reasoning that are based on rules of logic, probability theory and so forth. If the standard picture of reasoning [rationality] is right, principles of reasoning that are based on such rules are normative principles of reasoning, namely they are the principles we ought to reason in accordance with" (1996: 4). As is hardly news, however, there is plenty of reason to think that we don't

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<sup>5</sup>Cf. Cherniak (1986). Cherniak points out how pursuing some pretty banal logical demands is simply unreasonable for finite creatures such as ourselves. For instance, to do a truth table for just 138 propositions (hence, to check to see if 138 beliefs were consistent), the table would have to have about  $3.5 \times 10^{41}$  rows.

<sup>6</sup>For responses to Stichean arguments in the same general spirit as the above remarks, see, e.g., Stephens (2001) and Feldman (1988).

measure up to this. Thus, in addition to our not-uncommon pedestrian observations of our own, and others', irrationality, well-known experimental findings suggest as well that people often fail to reason as the Standard Picture says they ought to. For example, in terms of failures of deductive reasoning, subjects given the Wason task exhibit 'confirmation bias' (they don't check possible counter-instances to the rule). In terms of failures of inductive reasoning, we have such phenomena as base-rate neglect, and the gambler and conjunction fallacies. According some -- for instance, the psychologists Nisbett and Borgida -- such findings have "bleak implications for human rationality'."<sup>7</sup> Humans, as they see it, are simply deeply irrational. Rather than right rules of logic, people reason -- or, at least, they *think* -- using a grab-bag of various 'heuristics' of the sort that Kahneman *et al.* (1982) have described, heuristics which bring in their train certain illogical 'biases'.<sup>8</sup> So, it seems, both *a priori* reflection and empirical observation underwrite a pretty pessimistic assessment of our own epistemic situation: we seem to be pretty irrational, if anything, and there is no reason to think that natural selection would have ensured otherwise.

So, where does this leave us? Do we have any reason to see 'encouragement in Darwin'? Well, that's not at all clear. Whether one ought to take certain experimental

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<sup>7</sup>Quoted in Boterill and Carruthers (1999): 105.

<sup>8</sup>For instance, where subjects commit the conjunction fallacy, it is plausible to see them as employing 'the representativeness heuristic' ('to judge the probability that an object, X, belongs in some category, C, look at the degree to which x is similar to, or representative of, typical members of C'). Hence, e.g., the verdict that it is more probable that Linda (a fictitious person of whom subjects are given a partial description) is a feminist bank teller than that she is a bank teller.

findings as having ‘bleak implications’ for human rationality is, of course, a rather contentious matter, as is the closely related matter of how to explain subjects’ performance in a variety of tasks.<sup>9,10</sup> At the other extreme, though, *how could* it be that “[n]atural selection guarantees that *most* of an organism’s beliefs will be true, *most* of its strategies rational” (Dennett 1981: 75), given that it is becoming increasingly clear that the errors in reasoning which people are prone to make – including violations of even the most elementary rules of deductive logic and probabilistic inference -- are not just occasional or superficial, but pervasive and deeply rooted in the way our minds work? We seem, in short, to be stuck between having to choose between an overly-rosy and implausible optimism, and a pessimism that will strike many of us as too dire to be acceptable. What to do?

I do not plan to solve this problem here. I do, however, want to make an indirect contribution to its resolution by suggesting a reworking of the terms in which it is

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<sup>9</sup>These are issues at center stage in what has come to be known as ‘the Rationality Wars’. For a critical survey, see Samuels *et al.* (forthcoming).

<sup>10</sup>For example: Some – notably Cohen (1981) – invoke a competence/performance distinction to ‘save appearances’, in the face of our apparent manifest irrationality. (It is not clear how satisfactory this is, of course: the invocation of a competence/performance distinction is plausible when we have antecedent reason to think that we *have* got the relevant competencies; but the force of the first form of argument for the pessimistic conclusion is precisely that we don’t!) Others (typically, those of the ‘evolutionary psychology’ stripe) – e.g., Gigerenzer (1999, 2001); Cosmides and Tooby (1994) -- point out, e.g., that subjects’ performance on the Selection Task seems to depend on the details – for instance, that people do much better on ‘deontic’ versions of the task. From this, some infer that humans have evolved a ‘cheater-detector’ – a mental ‘module’ dedicated to detecting signs of ‘cheating’; this is said to make sense, from an evolutionary point of view.

standardly addressed. Given the amount of energy being spent in arguing over just what sort of epistemic achievements we can reasonably see natural selection as promoting, it is worth backing up a bit and getting clear on just how we are conceiving of those achievements themselves. And, in fact, there is reason to think that the difficulty people have in sorting out the plausible or reasonable claims from the implausible or extravagant ones, especially as concerns *vis-à-vis* Darwinian optimism/pessimism, owes a lot to the fact that they are uncritically grouping together rather different sorts of epistemic goods. Specifically, there is reason to think that we would do well to separate out considerations of (crudely) *reliable* belief – belief issuing from cognitive processes which tend to produce more true beliefs than false -- and *rational* belief – belief based on *reasons*, reasons that bear *logical* relations to the beliefs they support.<sup>11</sup>

To begin to see the need for this, consider that rules of inference or reasoning are only (in Goldman’s terms) ‘conditionally reliable’: your belief-formations can be logically impeccable; but if you start with false premises, the conclusions you draw

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<sup>11</sup>It is commonplace to distinguish between ‘practical rationality’ (norms concerning what to do, given one’s goals) and ‘theoretical’ rationality (norms concerning what to believe). Henceforth, in speaking of ‘rationality’, I shall be concerned with the latter sort (specifically, with issues of having/giving reasons for one’s beliefs, etc.). It is for this reason that, while congenial to the present discussion, Evans and Over’s (1996) distinction between “two kinds of rationality” – between “rationality<sub>1</sub>”, thinking that is generally reliable for achieving one’s goals; and “rationality<sub>2</sub>”, thinking which accords with an appropriate normative theory -- does not quite capture what I am after. For this distinction is *very* close to the practical/theoretical distinction, whereas I am interested in exploring complications within the latter half of this dichotomy.



won't be true.<sup>12</sup> 'Right rules of inference' may be 'truth-preserving', then, but they can only misleadingly be called 'truth-ensuring': to end up with truths, you need some truths to preserve. This, I take it, is obvious enough.

Less obviously, however, you can have true beliefs that are not based on (good) reasons; *and* you can use 'inference rules' – or, less provocatively, you can instantiate belief-forming processes – which, while they tend to issue in true beliefs, and so are reliable, are not obviously rational.<sup>13</sup> As an example, take those 'biases' the use of which, as we saw previously, some take to be evidence of widespread human irrationality. Kahneman and Tversky are among the best-known advocates of the 'heuristics and biases' tradition. Yet, while they do argue that such heuristics "sometimes...lead to severe and systematic errors" in reasoning (1974: 3), they also

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<sup>12</sup>“What we need for reasoning and memory...is a notion of '*conditional reliability*'. A process is conditionally reliable when a sufficient proportion of its output-beliefs are true *given that its input-beliefs are true*" (1992: 117).

<sup>13</sup>At least not in the sense of logicality, such as the Standard Picture presumes. Whether this Picture is plausible, of course, is itself a matter of much recent dispute – Stein (1996), Gigerenzer *et al.* (1999, 2001), Samuels *et al.* (forthcoming), Simon (1983), and Harman (1973, 1986, 1999), e.g., are among the many who have, in one way or another, challenged the Standard Picture. I do not wish to enter into the debate over the 'correct' conception of rationality here, however. In part, this is because the debate threatens at times to become merely terminological. In part too, it is because of a suspicion that those who propose to expand/revise 'rationality' in a dramatic manner do so, in part, because they are convinced that rationality is *the* pre-eminent epistemic good – something that is not, in my view, obviously correct. In any case, instead of attacking the Standard Picture of rationality directly, it strikes me as a more promising tactic simply to separate out different kinds of epistemic goods (labelling them as one sees fit – the labels themselves don't matter) and to employ the distinction(s) thus obtained in addressing the question of central concern here – namely, whether we ought to see 'encouragement in Darwin'.

observe, on a more positive note, that such heuristics are “[i]n general, quite useful” (*ibid.*). In fact, as Gigerenzer *et al.* have argued, applied in the right sort of domain<sup>14</sup> using such ‘fast and frugal’ heuristics is remarkably reliable (cf. Feldman 1988: 223ff.).

Consider, for example, ‘the recognition heuristic’, which counsels, roughly: *in choosing between two objects, if one is recognized and the other is not, choose the former*. In the case of choosing something to eat, on the assumption that humans have done a reasonably good job of discovering and incorporating edible things into their diet, the things that we do not recognize in our environment are more often than not inedible. Here, connections, or presumed connections, between various features of the world (between edibility and familiarity, e.g.) underpin and account for the success of the heuristic. Generalizing, ‘fast and frugal’ heuristics “exploit the structure of information in the environment to arrive at more adaptively useful outcomes” (Gigerenzer *et al.* 1999: 24). In effect, the idea is that *you don’t have to be that smart (i.e., logical, rational) if your beliefs latch on to and recapitulate the (non-logical, a-rational) structure of the world*. While they may be (in the right kind of circumstances) rather surprisingly reliable, such heuristics are, of course, irrational/illogical (or at least non-rational/non-logical).<sup>15,16</sup> So, once again: we have a *prima facie* case for not equating reliable belief-forming habits with rational ones, or *vice versa*.

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<sup>14</sup>Specifically, a domain resembling that in which the heuristics were (allegedly) ‘acquired’.

<sup>15</sup>Another example: “What is generally described as ‘confirmation bias’ in the execution of [the Wason selection] task – looking only at the *F* and *G* cases when testing a conditional of the form ‘For all *x*, if *Fx* then *Gx*’ – makes a good deal of sense

To further motivate and refine the distinction I am promoting, consider the dispute in contemporary epistemology between ‘internalists’ and ‘externalists’ about knowledge. This is a disagreement presaged in Plato’s *Theatetus*. Thus, to a first approximation, and oversimplifying quite a bit, externalists are those who hold (in Plato’s phrase) that “perception is knowledge” (Plato 1987: §184b; italics deleted). A bit more precisely, externalists tend to be reliabilists, holding that knowledge is true belief (e.g., that there’s a table in front of me) produced by a reliable cognitive process (e.g., perception). Internalists, on the other hand, maintain (again, in Plato’s words) that “knowledge is not located in immediate experience, but in reasoning about it” (*ibid.*: §186d) – that knowledge is “true belief accompanied by a rational account” (*ibid.*: §202c). Hence, e.g., according to Keith Lehrer, a leading contemporary internalist, externalists are not talking about knowledge at all: “they provide accounts of the

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when seen as a heuristic appropriate to most real-life cases. For suppose that the conditional is, ‘For all x, if x is a raven, then x is black’. It makes sense to test this by looking for ravens, and perhaps by checking on the black things one comes across. But it makes no practical sense at all to conduct a search of *non-black* things, to try to find a potential falsifier; there are just too many of them! So confirmation bias can be seen, not as flat-out irrational, but rather as an overextension to the four-card case of a heuristic which is normally appropriate and rational. And given that the heuristic may in any case be implicit and non-conscious, it is easy to see how the overextension should come about” (Botterill and Carruthers: 125-126).

<sup>16</sup>Gigerenzer *et al.* (1999, 2001) do argue that we should revise, or augment, our notion of rationality in a non-Standard manner – hence their notion of ‘ecological rationality’ (roughly, a matter of having heuristics which ‘fit’ the information structure in the local environment, such that they are “adaptively useful.”). It is not clear whether, or in what sense, ‘ecological rationality’ qualifies as theoretical *versus* practical (see n. 11); but, again, it is not my concern here to enter into a dispute over the ‘correct’ notion of rationality (see n. 13). In any case, it is enough that the heuristics in question are nothing like what is presumed by the Standard Picture of rationality.

possession of information rather than the attainment of knowledge” (Lehrer 1990: 162); for knowledge according to Lehrer requires, minimally, that one *know* that the information one is getting is correct. A bit less provocatively, Lehrer’s view is that, while externalists may be offering *a* conception of knowledge -- ‘primitive knowledge’, as he calls it -- *his* interest is in ‘discursive knowledge’. Whereas theorists (such as Fred Dretske, a leading externalist) interested in ‘primitive knowledge’ will study how the human mind receives certain sorts of information, those (like Lehrer) whose interest is in ‘discursive knowledge’ will concern themselves with examining “how the human mind *evaluates* the information that it receives, accepting some and rejecting some, in terms of some background system” (Lehrer 2000: 639; italics added):

“[Discursive knowledge is the] kind of knowledge we use in reasoning to refute and confirm hypotheses, the premises of cogitation and ratiocination. [It] supplies us with the premises and conclusions of justified reasoning and enables us to show that it is reasonable to accept some things and reasonable to reject others....As Sellars once put it, knowledge of this sort has a special role in the game of critical reasoning and justification.” (*Ibid*: 638)<sup>17</sup>

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<sup>17</sup>Lehrer’s distinction between ‘primitive’ and ‘discursive’ knowledge closely parallels Sosa’s distinction between ‘animal’ and ‘reflective’ knowledge. – See Sosa 1991, especially Essay 13.

So we have before us the distinction between reliable belief and rational belief, between primitive and discursive knowledge.<sup>18</sup> These do seem, on the face of it, to be rather different sorts of epistemic achievement – one can easily imagine a creature capable of the one, but not the other. Thus, for example, it seems to me that my dog, Isaac, has a great many beliefs that are reasonably-well hooked-up to the world, reliably tracking certain of its (for him) salient features – he knows where their food dish is, he sees/knows that there’s another dog headed his way; he can tell when I’m angry with him; etc. But, unless I’m very much mistaken, Isaac doesn’t play “the game of critical reasoning and justification” at all.

While the distinction itself is clear enough, and while it seems to have genuine utility (it enables us to say everything we want to say about the epistemic abilities Isaac does and does not have, e.g.), in arguing over whether we should find ‘encouragement in Darwin’ – i.e., whether we should expect natural selection to ‘favor’ creatures capable of attaining certain epistemic goals -- just about everyone *simply runs these together*. (A typical example is Dennett’s dictum, quoted at the outset. Or consider the fact that theorists regularly take empirical evidence of human irrationality to cast doubt

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<sup>18</sup>Along with these two ways of thinking about knowledge, of course, come two ways of thinking of ourselves. Externalists such as Dretske invite us to think ourselves as just another kind of biological organism, an organism that more or less accurately represents certain features of its environment. Internalists such as Lehrer want us to see ourselves as critical, rational, self-reflective epistemic agents, capable of reasoning logically to and for the *justifiedness* of certain first-order mental states. (Cf. Dretske, 1991, on ‘bottom-uppers’ and ‘top-downers’, who take Fido and the white-frosted scientist as their respective exemplars of knowers.) Essentially this distinction is at the forefront of Foley’s (1993) discussion of ‘egocentric epistemology’ and (*versus*) ‘the epistemology of knowledge’.

on epistemologists' being able to find *any* 'encouragement in Darwin'.<sup>19</sup>) 'Reliable' and 'rational', as they are used in talking about these issues, tend to be used interchangeably. But surely this is a mistake: Think again of the 'homely' line of thought rehearsed at the outset: if you can't spot food, you don't eat, and if you don't eat, you die; if you don't know a predator when you see one, you get eaten; if your induction strategies are such that you're constantly forming false beliefs, you're in trouble, for surely it's *true* beliefs that help a creature survive and reproduce; etc. As Dretske says, in his aptly-titled, "The Need to Know":

"Getting things right is not just a useful skill. It is a biological imperative. Behavior has to be coordinated with the external conditions on which its success depends. An animal doesn't want to be running *all* the time; only *when* there is something chasing it. Courtship and mating activities are nice, but only *with* a partner...." (Dretske 1989: 89)

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<sup>19</sup>A few examples: (a) Plantinga (1993: 232-3) separates out theoretical-type beliefs from more 'animal'/unreflective ones, but only in the service of arguing against naturalism in epistemology. (b) Towards the end of his "Rationality, Reliability, and Natural Selection" – a promising title, from the point of view of the present discussion, suggesting as it does that he will take up and apply the distinction being advertised here – Feldman notes that "even if natural selection does favor the use of reliable strategies, it is unclear that it follows that it favors rational strategies" (1988: 266). But he raises this point only to set it aside. (c) Stephens (2001), in replying to Stich (1990), moves freely between using "reliable" and "rational" to describe the inference methods that natural selection (*pace* Stich) can be expected to favor. (d) Sober (1981), ostensibly, is concerned with rationality, but his notion of rationality is quite broad – so broad, in fact, that it would include both, and therefore fail to distinguish between, primitive and discursive knowledge: "[a] technique for constructing beliefs will be rational if it is reliable and fruitful" (1981: 97). ('Reliability' is as I have introduced it here; 'fruitfulness' is a matter of a technique's producing beliefs that are "general, nontrivial, explanatory, and simple" [*ibid.*].)

So, a given creature needs a way of reliably tracking certain features of its environment: it needs some reliably-produced true beliefs, some ‘primitive knowledge’.

Even if this is right, there are of course limits to the scope of this sort of argument. For instance, it would secure reliably produced true belief (hence, ‘primitive knowledge’) only for those creatures that *have* beliefs. Further, insofar as what a creature believes “is relevant to [its] survival only to the extent that [its] beliefs affect its behavior” (Feldman 1988: 225) – further, only to the extent that those beliefs affect *certain elements* of its behavior – there is no reason to think that *all* of a creature’s beliefs would need to be correct, all of its belief-forming strategies reliable, in order for it to thrive. And so on. – But the important point is that nowhere in rehearsing the homely line, nowhere in reminding ourselves of ‘the need to know’, have we mentioned *internalistic* notions such as justification, argumentation, reasons, and so forth – the more sophisticated sort of epistemic items that are part-and-parcel of ‘discursive knowledge’. Dretske turns this point into a challenge to internalists such as Lehrer:

“If an animal inherits a perfectly reliable belief-generating mechanism, and it also inherits a disposition, everything being equal, to *act* on the basis of the beliefs so generated, what additional benefits are conferred by [e.g.] a justification that the beliefs *are* being produced in some reliable way? If there are no additional benefits, what good is this justification?” (Dretske 1989: 95)

As Dretske sees it, it is questionable whether there would have been any selectional advantage conferred upon our remote ancestors by their having had rational

beliefs: why bother building a *rational* creature when a much humbler, *prerational* cognitive endowment – for instance, the ability simply to more-or-less reliably detect shelter, predators, mates, and prey, etc. – would do equally well in enabling it to survive and reproduce? After all, contrary to what is generally assumed, *irrational* belief – belief based on *bad* reasons or *lousy* arguments --, such that one is liable to end up believing very many falsehoods, is not the only alternative to rational belief; just as genuine an option is *arational* belief – belief not based on ‘reasons’ at all. And, as we saw previously, it is a mistake to think that the use of certain non-logical, non-rational heuristics is going to *have* to leave you believing very many false things, at least as for those beliefs directly connected with how you behave.

But while Dretske uses this point as a way of arguing against internalists (“why would a creature need rational belief at all?”), I think it has a much broader significance. For if – *if* – it is not clear that any selectional advantage would be conferred upon a creature capable of attaining ‘discursive knowledge’, whereas there *is* some obvious selectional advantage to having ‘primitive knowledge’, this suggests that, contrary to how discussions of evolutionary epistemology actually proceed, in understanding the origins of (/impetus to) each, (bare) reliability and rational belief – primitive knowing and discursive knowing -- *require different sorts of handling*.

Since the advantage of primitive knowing, of *reliable* belief, is reasonably clear, what’s lacking is a story, in terms of something other than natural selection, of the advantage of having discursive knowledge, *rational* belief. Of course, having reasons for one’s beliefs – being able to justify them – has at least instrumental utility, in that it



“promot[es] the reliability of the beliefs for which it is available” (Dretske 1989: 95). But if your perception-based beliefs aren’t already reliable enough for you to survive and reproduce, you’ll never get a *chance* to play “the game of critical reasoning and justification”. On the other hand, if your perception-based beliefs *are* reliable enough for you to get by, what would be the benefit of having any *extra* insurance against their falsity? It is essentially this question that N. K. Humphrey is posing when he writes:

“How clever does a man or a monkey need to be before the returns on superior intellect become vanishingly small? If...the important practical problems of living actually demand only relatively low-level intelligence for their solution, then there would be grounds for supposing that high-level creative intelligence is wasted....Can we really explain the evolution of the higher intellectual faculties of primates on the basis of success or failure in their ‘practical exams’?” (1979: 306)

So, once again: *what good* is rational belief?

Well, it is unlikely that this question is going to admit of a neat and tidy answer – that it will not, indeed, is one of the intended morals of the present discussion; so let me just suggest a direction in which, it seems to me, an answer to it liable to be found. The trouble we are having is in finding some job for discursive knowledge to do – some good for it to confer, some need for it – in the epistemic life of a single knower. The suggestion I want to make is that, to find a place for rational belief, we need to bring in

essentially social considerations.<sup>20</sup> Dretske comes close to this – he brushes up against the idea, as it were – but quickly turns it into a point about the essentially *intra*-personal role of justification:

“[Justification] may acquire a utility in the way it affects a person’s preparedness to *act* on [a] belief. Even if my informant is perfectly reliable, I won’t trust him, and won’t therefore benefit from his communications, if I am given no reason to think he is reliable. So justification is important *to me*. But if it doesn’t affect a person’s willingness to believe, and by this I mean a person’s willingness to *act* on what he believes, nor the reliability of the beliefs on which he acts, as I think it is clear it doesn’t in the case of most *perceptual* beliefs (paradigmatic cases of knowledge), of what possible value could a justification be? This, I submit, is why we all find justification to be largely irrelevant to what we can *see* (hence *know*) to be the case” (1989: 96)

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<sup>20</sup>Humphrey (1979) proposes that to understand the source and nature of “creative intelligence” and the knowledge to which it gives rise, one must look to social factors. On Humphrey’s view, such intelligence (as opposed to more ‘low-level’ sorts of epistemic achievements) enables us to cope with the complexities that come along with our being social creatures; in addition, a social community “provides both the medium for the cultural transmission of information and a protective environment in which individual learning can occur” (1979: 307). This is certainly consistent with what I go on to argue below. Notice, though, that possessing creative intelligence *per se* is not, on the face of it, the same thing as having a capacity for discursive knowing. (The former could be realized by a creature, after all, simply by its possessing certain heuristics, ones which would perhaps not be applicable for non-social creatures.)

In my view, though, Dretske here skips over what is actually a rather plausible suggestion as to the utility of rational belief. In outline, the suggestion is as follows:<sup>21</sup> Our ability to reason is manifested in both individual reflection and discursive argumentation. It is typically, and quite naturally, assumed that the former underpins the latter – that argumentation is merely the external expression of an individual cognizer’s reasoning capacities. And perhaps that is so with regard to mature human subjects today. As Dan Sperber (forthcoming) has pointed out, however, it is at least arguable that this gets things the wrong way around: from this perspective, our reasoning capacities are more naturally viewed as arising out of dialogical argumentation. Here is the basic idea:

Just as an ability to detect certain of its features enables a creature to cope with its natural environment, linguistic communication enables a creature, not simply to pass on this modest sort of knowledge (though it might do that), but to cope with other humans – to pass on information with a view to shaping their minds and thence (if all goes well!) *their* behavior. (Note the contrast with Dretske’s focus on *one’s own* behavior.)

The potential benefits of receiving information from others, however, must be weighed against the costs of acquiring *misinformation*. Hence, there arises the need for

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<sup>21</sup>In what follows, I am heavily indebted to Dan Sperber’s forthcoming paper. I should point out, however, that Sperber is concerned to address a different topic from that of the present paper. Sperber is responding to Goldman’s (1999, 1994) treatment of testimony and argumentation within a ‘veritistic’ framework – that is, to Goldman’s casting of these practices as promoting the acquisition of truth and knowledge. Sperber’s concern is to argue that, from an evolutionary point of view, their function is quite otherwise.

hearers to evaluate the reliability of both individual speakers and the messages they convey. And among the most obvious ways of doing the latter is to attend to both the internal coherence of the message and to its external coherence with things already believed. (This process is essentially meta-representational: it involves evaluating logical and evidential relations among representations and forming beliefs about the mental states of others.) Likewise, from the point of view of the hearer, an explicit presentation not merely of a given message, but of its internal and external coherence – a speaker's not just communicating that *p*, but offering *reasons* for *p* --, functions as a kind of 'honest display', and is liable to make the hearer more likely to believe what's conveyed, thus furthering the communicator's goal of persuading, hence manipulating, his audience. (In effect, creatures would come to *have* reasons because of a need to *give* them.)

Through successive iterations, there arises out of this process skills -- at times explicitly articulated, in the form of rules of logic and rhetoric -- centering around the effective presentation and evaluation of arguments, skills which both speakers and hearers are then able to exploit in individual cognition. In this way, though they arise simply as a means of manipulating the beliefs and behavior of others (and avoiding being unduly manipulated oneself), reasoning abilities come to serve as an instrument for both effective interpersonal information-transmission and individuals' examining,

regimenting, and extending their own stock of knowledge.<sup>22</sup> (The sort of epistemic activity prized by internalists.)<sup>23</sup>

This is all highly speculative, of course, as is any proposal about the nature and origins of human cognition. But it does provide a way – it remains to be seen whether it is the right way, of course – of understanding why and how creatures such as ourselves might have come to possess reasoning abilities and the capacity for discursive knowledge. (The view that dialogical argumentation arose merely as an out-growth of individuals' already-possessed reasoning abilities merely postpones this question.)<sup>24</sup> In doing so, moreover, it enables us to see that and why, contrary to what is generally

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<sup>22</sup>As Sperber points out, on this view, while sophistry might accord with the evolutionary *raison d'être* of communication – the persuasion of others --, deliberately fallacious reasoning is nonetheless a perversion of the intended function of the practice, to which communicative interaction gives rise, of asking for, giving, and evaluating reasons; for that function is to aid in the detection and discovery of truth.

<sup>23</sup>The foregoing is quite similar, in some respects, to Craig's (2000) response to Lehrer (2000). According to Craig, others' giving reasons for their beliefs makes them more reliable/useful informants; in addition, rehearsing to oneself one's reasons for believing something is especially useful when one cannot simply go back and reacquire that belief, and rehearsing such reasons publicly enables me to identify myself to others as a reliable source of information, even though they themselves may not be able to judge directly as to the truth of what I believe (2000: 656-657). On the present account, however, while these are indeed plausible suggestions as to some of the things that discursive knowing enables, they should not themselves be taken as explaining why we would come to be capable of it in the first place. The present suggestion, following Sperber, is that the relevant skills are useful, and arise, because they allow a creature to shape the beliefs and behavior of its conspecifics.

<sup>24</sup>Further, the present proposal provides a way of understanding why it is for example that, though certainly capable of both cognition and communication, creatures lacking sophisticated linguistic abilities seem not to exhibit much in the way of rationality. The conjecture is that this is in large measure because human language affords *us* the rich meta-representational resources that sophisticated reasoning of any sort evidently requires.

assumed, the origin and utility of rational belief might be quite unlike that of reliable belief. Recognizing this, we are in a better position to see in what way(s), exactly, it is all right, or a mistake, to seek ‘encouragement in Darwin’.<sup>25</sup>

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