

NOTES AND COMMENTARY

HAYEK, LOGIC, AND THE NATURALISTIC FALLACY

BY
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“I have no intention to commit what is often called the genetic or naturalistic fallacy,”
F. A. Hayek, *The Fatal Conceit*, p. 27.

In his paper titled “Did Hayek Commit the Naturalist Fallacy?” published in the September 2004 issue of the *Journal of the History of Economic Thought*, Erik Angner develops three theses. The first is that Friedrich Hayek’s own writings and those of competent commentators give plentiful evidence that Hayek *appears* to have inferred values from facts. (The *appears* is stressed because Angner himself denies that Hayek committed the fallacy.) After providing some quotations from Hayek to support this interpretation, Angner summarizes what the naturalistic fallacy as committed by Hayek would imply:

These quotes, whose prevalence and consistency over time is notable, suggest a reading along the following lines. There is something *desirable*, in an unambiguously normative sense, about orders that have evolved in a process of cultural evolution. At the very least, such orders tend to be more desirable than both artificial orders and combinations of artificial and spontaneous orders. Since we cannot improve on spontaneous orders by replacing them by artificial ones, a society based on spontaneous order—specifically, the spontaneous order of the free market—will be superior to any alternative (Angner 2004, pp. 351–52).

Second, Angner asserts that there is an alternative reading of what Hayek was saying, one that he calls a *descriptive* reading and which he attributes to Bruce Caldwell. On this reading:

Hayek did not believe that evolved orders tend to be desirable, and he did not endorse an evolutionary argument in favor of free-market capitalism. According to this reading Hayek escaped the naturalistic fallacy since his theory of cultural evolution has no normative implications at all. Though the theory of cultural evolution serves

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to explain how market institutions developed, it does not serve to justify them (Angner 2004, p. 353).

After reviewing and criticizing the evidence for the descriptive reading, Angner states that, in his opinion, it finds little support:

support for Caldwell's position is weak. Textual evidence is scant. Two of the four quotes that allegedly support their position, when read in context, do not contradict the normative reading. Two of the four come from *The Fatal Conceit*, which is a source of questionable value. And even if we do accept *The Fatal Conceit* as an expression of Hayek's own views, it does not unambiguously support Caldwell's case. Contrary to what Caldwell suggests, Hayek never expressly states that the theory of cultural evolution *only* serves to explain the development of free market institutions. The normative reading is inconsistent with the interpretation of Popper, who we have reason to believe may know what he was talking about. And finally, the interpretation makes Hayek's writings seem seriously misleading (2004, p. 356).¹

Angner's third thesis is that there is another reading, what he calls the *weak normative* reading, one that says that evolved orders only *tend to be* desirable. Angner claims that Hayek was only making an inductive argument, not a deductive one, and if this is the form of argument Hayek endorsed, then he escapes the naturalistic fallacy. Angner notes that Hayek's use of terms like "most likely," "often," and other qualifiers when discussing spontaneous orders shows that in fact he was making just this sort of argument.

We believe that all three of Angner's theses are deeply mistaken, which we will demonstrate in detail below.

I. ANGNER'S FIRST THESIS

(1) *Angner's Evidence for the Fallacy*

Angner claims that there is profuse textual and contextual evidence that would lead a reasonable person to conclude that Hayek fell into the naturalistic fallacy. On the one hand, he claims that Hayek's own writings make commitment to the fallacy seem plausible, and on the other, interpretations by Karl Popper and other eminent scholars point in the same direction. In this and the next section we consider the textual evidence from Hayek's own writings, while section III deals with the context in which he made his arguments.

We invite the reader to turn to Angner's article and examine the quotations he provides. Had Hayek committed the fallacy, we should expect to find Hayek saying something like "institution or practice *x* emerged through an evolutionary process, and therefore it is good" or perhaps "any institution that survives an evolutionary

¹Some of the quotations supporting "Caldwell's position" are provided by Glen Whitman. Angner presumably calls the descriptive reading "Caldwell's position" because, as he tells the reader in a footnote, "Whitman has informed me that he does not endorse the descriptive reading" but favors Angner's own position (2004, p. 352, n. 4).

process is optimal (in the normative sense of the word).” Of course, Angner does not produce such a quotation, and for very good reason—Hayek never said such things. What Hayek does say (and this is what permits Angner to put forward the weakly normative reading) is that spontaneously emerging institutions are often “beneficial,” or are “effective” for achieving the group’s purposes (Angner 2004, pp. 350–51). And, of course, they are. But to assert this is not to commit the naturalistic fallacy. For the latter, one must assert that, *because* something has survived an evolutionary process, it is optimal.

Even if one does not think that Angner has established the plausibility of the naturalistic fallacy misreading, it is true that a number of people (not just Popper) have indeed misread Hayek as having committed the fallacy. So we will have to explain why that might have happened, which we will attempt to do in the section after the next.

(2) *Dealing with Hayek’s Denials*

Angner recognizes that he will have to deal with Hayek’s own unambiguous statements (the most direct of these opens this paper) that he was trying to avoid the naturalistic fallacy. He does so by claiming that the textual evidence for Hayek’s apparent belief is weak. From his paper one might get the impression that Hayek only said anything about this on a mere four occasions, that on two of them another reading is possible, and that two of them come from *The Fatal Conceit*, which Caldwell himself admits is a problematical book.

This is a distorted view of the textual evidence. First, Hayek makes statements that are inconsistent with the naturalistic fallacy in a number of places, not just the four that Angner cites. For example, in *The Constitution of Liberty* we find (in addition to the citations Angner highlights) the following passages. Hayek notes that habits and skills, emotional attitudes, tools and institutions, are all “adaptations to past experience which have grown up by selective elimination of less suitable conduct” and which provide an “indispensable foundation of successful action” (Hayek 1960, p. 26). He immediately qualifies this with the following sentences: “Not all these non-rational factors underlying our action are always conducive to success. Some may be retained long after they have outlived their usefulness and even when they have become more an obstacle than a help” (1960, p. 26). A few pages later we find the following passages:

It is, of course, a mistake to believe that we can draw conclusions about what our values ought to be simply because we realize that they are a product of evolution. . . . The ultimate decision about what is good or bad will not be made by individual human wisdom but by the decline of the groups that have adhered to the “wrong” beliefs.

At most, we understand only partially why the values we hold or the ethical rules we observe are conducive to the continued existence of our society. Nor can we be sure that under constantly changing conditions all the rules that have proved to be conducive to the attainment of a certain end will remain so (1960, p. 36).

Moving on to the first chapter of volume one of *Law, Legislation and Liberty*, Hayek again makes the point very directly: “We will mention at this point only briefly that the

frequent attempts made to use the conception of evolution, not merely as an explanation of the rise of rules of conduct, but as the basis of a prescriptive science of ethics, also have no foundation in the legitimate theory of evolution" (1973, p. 24).

And as Angner recognizes, Hayek is even more explicit about avoiding the naturalistic fallacy (where, as is noted in the quotation with which we begin this comment, Hayek even uses the term) in *The Fatal Conceit*.

If one reviews the evidence, one is struck with how consistently Hayek emphasized these themes. He first began discussing cultural evolution, and warning against the naturalistic fallacy (though without using the term) when discussing evolution, in chapters three and four of *The Constitution of Liberty*, published in 1960. He returned to the topic in "Notes on the Evolution of Systems of Rules of Conduct" (1967, for example, pp. 67–69, 71) and again in volume 1 of *Law, Legislation and Liberty* (1973, for example, p. 24). Finally, he discussed them again in *The Fatal Conceit* (1988, e.g., p. 27). Thus in writings that span three decades Hayek repeatedly insisted, when discussing cultural evolution, on including the qualifying remark that what emerges through the evolutionary process is not necessarily optimal or good. Rather than saying that he *only* talked about this in four places (and as noted above, there were more than four), it would be more accurate to say that Hayek *consistently saw fit to emphasize* that his positive descriptions of an evolutionary process did not imply the normative conclusion that whatever emerged was optimal. It seems to be a point that he thought was important enough to repeat again and again.

And of course this is exactly what one should expect. To argue that something is either desirable or optimal simply because it evolved is *prima facie* implausible. Angner seems intent on proving that Hayek thought that the market order was optimal because it was produced via an evolutionary process. Setting aside for a moment Hayek's writings on cultural evolution, this ignores the basic fact that Hayek frequently pointed out problems with the market. His initial work in economics was, after all, concerned with the trade cycle, which he felt was an unfortunate but inevitable concomitant of a monetary economy. In his 1933 Inaugural lecture he castigated the notion of *laissez-faire*, a point he repeated in such books as *The Road to Serfdom* and *Law Legislation and Liberty* (for example, Hayek [1933] 1991, p. 31; [1944] 1976, p. 36; 1973, pp. 61–62, 68). Surely had Hayek thought that markets always render the best possible outcomes he would have advocated *laissez-faire*. In *The Constitution of Liberty* he took pains to emphasize that market outcomes need not, and typically do not, accord with our prior notions of "merit" (Hayek 1960, chapter 6.) This list could easily be extended.

Lest someone think that Hayek was uninformed about evolutionary theory, it is relevant to add that he had a strong interest in it from the days of his youth onwards. Furthermore, he greatly deepened his understanding of evolutionary theory when he was at the University of Chicago in the 1950s, during a period in which the Darwin Centennial celebration was held there. He was surrounded by and interacted with experts on Darwinian theory. Had he ever been tempted to commit the naturalistic fallacy, it would very quickly have been pointed out to him that it was a mistake to avoid. Given Hayek's background and his frequent interaction with Darwinists and other experts in evolutionary topics, it appears to be extremely unlikely that he would fall into this error.

Finally, Angner refers to Caldwell's comments about the problematic nature of *The Fatal Conceit* to defend the point that any quotations found there must be viewed with some suspicion. However, in Caldwell's discussion of *The Fatal Conceit*, what he points to are those parts of the book that were wholly new and which looked suspiciously similar to views that had earlier been expressed by Hayek's editor, W.W. Bartley III, namely Hayek's ringing endorsement of "evolutionary epistemology" and of the Bartleyan idea that our morals are not rationally justifiable (Caldwell 2000, pp. 17–18). Caldwell did not identify the parts on cultural evolution to be problematic, because these were, after all, things that Hayek had said repeatedly since the 1960s. That Angner would imply otherwise is misleading, a clear misreading of what Caldwell wrote.

(3) *Why Do People Frequently Misread Hayek?*

If, as seems evident, Hayek himself thought he was not committing the naturalistic fallacy, and indeed explicitly stated on numerous occasions that just because something has survived an evolutionary process does not make it optimal (normatively speaking), why is it that so many people, some of them people who (as Angner suggests) should know better, have misread him? We think that there are a number of possible reasons.

The first is that, partly because he wrote so much, and partly because he was a controversial figure, so that people typically come to his work with opinions already formed, and partly (it must be said) because he was not always clear, Hayek is a notoriously easy person to misread. Greg Ransom, who runs the Hayek discussion list on the web, has for years had an incomplete paper on his website that has another title but which might well be called "Stupid Ideas that Supposedly Smart People Have Attributed to Hayek." The possibility that he has simply been, once again, misread, is certainly a real one.

Another reason is that Hayek's discussions of ethics and norms often took place on two different levels. Hayek explicitly held an evolutionary view about the origins of ethics. In addition, he implicitly held a broadly utilitarian or consequentialist ethical theory when it came to judging specific institutions.² (We call the latter implicit because Hayek never spelled out his own theory of ethics.) Anyway, this could account for why he sometimes appears to mix normative judgments in with his descriptions of evolutionary processes.

So, for example, Hayek made separate arguments in favor of the norms and institutions that accompanied the growth of trade, the division of labor, specialization and the free market. He claimed that when a system of free markets exists within a democratic polity under the rule of law, with strong constitutional protection of a private sphere of individual activity, and well-defined, protected and exchangeable property rights, individuals will have both the incentives and the opportunity to correct errors and to make the best use of the knowledge available to them, all the while preserving individual liberty. Now to be sure, many of the norms and institutions that

²Though the Austrians eschew static allocative efficiency as a welfare criterion, the one they would put in its place is not always clear. See Kirzner (1997, pp. 76–77) for discussion and further citations.

Hayek favored emerged through an evolutionary process. *But the fact that they evolved is not what made him favor them.* He favored them for their effects on the discovery, preservation, transmission and coordination of knowledge, and for preserving liberty. And as the quotes from *The Constitution of Liberty* provided above indicate, Hayek recognized that an evolutionary process can *also* produce other institutions, ones that he thought were harmful to the societies in which they developed (Hayek 1960, p. 26).

A third possible source of confusion is that Hayek sometimes discussed the role of tradition in the evolution of societal norms and of its important role in the transmission of knowledge through time (for example, 1960, pp. 27–28; pp. 61–63; cf. [1946] 1948, pp. 23–25; 1979, pp. 154–63). When doing so he often would invoke his argument about the limitations of our knowledge to support the claim that we should be cautious in undertaking institutional change. He believed that we just do not know, and can never know, all of the functions that our evolved social institutions and moral beliefs fulfill. Many have criticized Hayek for his deep epistemological pessimism, but his argument rests on his beliefs about the limits of human knowledge. It does not derive from the view that whatever is, is best.

Hayek also frequently criticized “rationalist constructivism” or “the engineering mentality,” that is, the presumption that social institutions must be consciously designed if they are to serve human needs (e.g., Hayek [1964] 1967; 1973, chapter 1). He contrasted this view with that of Carl Menger and Scottish Enlightenment thinkers who posited the existence of spontaneously forming social institutions that are the products of purposeful human action but not of human design. In arguing against rationalist constructivism, one does not say that occasionally a beneficial spontaneously forming social institution may evolve; rationalist constructivists, after all, do not even acknowledge their existence. Rather, one points out that many social institutions are in fact examples of such spontaneously forming orders. As such, examples as exchange, money, language, and the moral code demonstrate, the claim is true. But this does not mean that any social institution that evolves is therefore beneficial.

There is still another reason for the prevalence of misreading. Let us examine yet another of Hayek’s quotes, one not mentioned by Angner, in which the apparently normative words “beneficial” and “harmful” are used. Hayek says:

The evolutionary selection of different rules of individual conduct operates through the viability of the order it will produce, and any given rules of individual conduct may prove beneficial as part of one set of rules, or in one set of external circumstances, and harmful as part of another set of rules or in another set of external circumstances (1967, p. 68).

This quotation is taken from his paper, “Notes on the Evolution of Systems of Rules of Conduct,” which contains a general discussion of spontaneous orders. Hayek uses “normative” language, but pretty clearly, when he states that a rule or practice is beneficial or advantageous he simply means by this *that it allows an order to persist*. And indeed, it is very difficult *not* to use terms like beneficial or advantageous when speaking about rules or practices that provide an advantage in a selection process. But such words do not convey notions of either optimality—after all, what is advantageous today or in one environment need not be so tomorrow or if the environment changes, as his quotes underlines—or of the author’s normative approval.

Finally, at times Hayek made explicitly positive claims about evolutionary processes. In this he is a forerunner of writers like Paul Seabright and others who speculate on the incredible fact that mankind in the course of about 40,000 years went from subsistence hunter-gatherer societies to create the complex social order that we now inhabit (Seabright 2004). An example of an evolutionary explanation that does not deal with either ethics or markets, but perhaps may shed some light on what Hayek was trying to say, is provided by Colin Tudge in his wonderfully titled book, *Neanderthals, Bandits and Farmers: How Agriculture Really Began* (1998). In his description of the development of agriculture, Tudge argues that early man did not particularly like farming, because hunting-gathering where it was possible was a much less arduous way of life. However, in regions where farming did happen to develop, either because of the fertility of the soil or the larger number of indigenous plants that could be domesticated or the paucity of animals to be hunted, its emergence allowed the population in that area to grow. Once that had happened, farming became necessary for continued survival. Because it provided alternative food sources to fall back on, farming also permitted hunters to over-hunt their areas. This resulted in what has been called the “Pleistocene overkill” period, during which the food sources for hunter-gatherers groups like the Neanderthals were decimated, which led in turn to their gradual extinction. Tudge summarized the emergence of farming in this way: “Farming eventually succeeded, ecologically speaking, not because it is pleasant but because it works: it coaxes more food from the environment than otherwise would be the case. Because of this, it enables human populations to arise” (Tudge 1998, p. 49).

Tudge’s description of the emergence of farming has much in common with Hayek’s description of the emergence of markets. Farming arose where it did due to unique circumstances of time and place. But once it was in place, it became necessary, unless one was prepared to accept huge decreases in population via starvation. Many of the practices, rules, norms and institutions Hayek described emerged in the same way. As he frequently pointed out, these were not practices that people particularly liked, and we often do not understand exactly how they came about. And for at least some of these practices, once they are in place, to eliminate them (or, more precisely, to replace a market with central planning) would result in a society that would not be able to support the large population that now exists. We may disagree with the claim, but it seems clearly to be a positive, not a normative, one.

II. ANGNER’S SECOND THESIS

(4) *Caldwell and the Descriptive Reading*

As noted above, Angner juxtaposes those who accuse Hayek of committing the naturalistic fallacy with a purely descriptive reading, the latter of which he associates with Bruce Caldwell. He cites two papers by Caldwell where the descriptive thesis purportedly is developed. The clear division between the two camps is crucial to his paper, because Angner’s whole point is to show that there is a “third way” between those who accuse Hayek of the naturalistic fallacy and Caldwell. There is, however, a problem here. Caldwell never endorsed a purely descriptive reading.

Angner's contention that Caldwell defends the descriptive thesis is apparently based on the following sentence, taken from one of the two papers by Caldwell he cites: "the claim that Hayek fell into the naturalistic fallacy, that is, that he thought that the survival of an institution somehow guaranteed its optimality, is a misreading both of Hayek and of evolutionary theory, as Douglas Glenn Whitman (1998) effectively demonstrates" (Caldwell 2000, p. 20, n. 1, cited in Angner 2004, p. 352). *This is the only place that Caldwell mentions the naturalistic fallacy in his two papers.* One of the papers is about the history of the development of Hayek's ideas about cultural evolution (Caldwell 2000). The other deals with three common complaints that had been lodged against Hayek's theory, but it does not deal with the naturalistic fallacy (Caldwell 2002). The quotation that Angner cites is taken from a footnote in which Caldwell states that the other three complaints that *are* dealt with are the substantive ones. Caldwell then dismisses the naturalistic fallacy as a false issue that Glen Whitman's piece had already effectively repudiated. To repeat: The single sentence Angner quotes is the sole extent of Caldwell's writings on the naturalistic fallacy in the two articles by Caldwell to which Angner refers.³

(5) Caldwell's Actual Position on the Naturalistic Fallacy

Caldwell's actual position, then and now, is quite simple. First, he denies that Hayek committed the naturalistic fallacy. In this he agrees with Whitman, who put it this way: "Some analysts have criticized Friedrich Hayek's theory of cultural evolution for implying that the rules, customs, norms, and institutions that emerge from the evolutionary process are necessarily efficient or desirable in all cases. This charge is unfounded" (Whitman 1998, p. 45). The naturalistic fallacy implies that whatever survives an evolutionary process must be optimal, that the evolutionary process produces the best of all worlds. Whitman showed that this is not the case in either social or biological evolution, and argued that Hayek knew this. If one looks at Caldwell's quotation, it should be clear that he is simply agreeing with Whitman's position: Caldwell thinks that those who accuse Hayek of committing the naturalistic fallacy are wrong.

It should also be evident that to *deny* that Hayek committed the naturalistic fallacy is not the same thing as *asserting* the descriptive reading. Angner dresses up the latter part of his paper with some formalism from the logic of argumentation to buttress his defense of the weak normative thesis. As we will show presently, the formalism developed in the paper is not even able to express the contentious issue. One wishes he had been more careful with his own logic, but then again, had he been there would have been no paper to write.

What has been demonstrated above is that Hayek sometimes made descriptive statements, and sometimes normative ones, when he talked about cultural evolution. The normative statements were based on arguments about the effects of specific social and economic institutions on individual liberty and on the discovery, preservation, transmission, and coordination of knowledge. He never claimed that such institutions were beneficial *because* they emerged through an evolutionary process, nor did

³Caldwell did address the issue briefly in his book *Hayek's Challenge* (2004), this because by then he had been a commentator on Angner's paper at the History of Economics Society meetings in 2001.

he claim that all (or even most) institutions that emerge through an evolutionary process have to be beneficial.

III. ANGNER'S THIRD THESIS

(6) *Angner's Logical Missteps*

Angner's third thesis is that Hayek does not fall into the naturalistic fallacy if one adopts a supposed third interpretation which he calls the "weak normative reading" according to which evolved orders only *tend to be* rather than *will be* or *have to be* desirable. Worries about the necessity for such an interpretational move aside, we are now considering whether the move is successful if one were to adopt it.

In most general terms, a fallacy is simply a bad argument—an argument that fails to give good reason for accepting its conclusion. Usually only those kinds of bad argument that are nonetheless frequently made are called fallacies: for example, the fallacy of affirming the consequent (which infers from "If p then q " and " q " to " p ") or the *post hoc ergo propter hoc* fallacy (which infers from " B regularly follows A " to " B is caused by A "). We can distinguish two types of fallacies: logical or *formal* versus extra-logical or *informal* fallacies. Committing a formal fallacy means to propose a deductively invalid argument. Affirming the consequent is an instance of that type—the conclusion does not follow deductively from the premises. Whether or not an informal fallacy has been committed, by contrast, cannot be decided on the basis of logic alone. In an inductive argument, for instance, the conclusion is not meant to be implied by the premises. Thus whether or not an inductive argument is fallacious or not must be decided on extra-logical considerations. We call the *post hoc ergo propter hoc* inference fallacious because we know that events A and B , which are such that B regularly follows A , may both be effects of a common cause rather than directly causally connected. The inference is fallacious not because there is a logical mistake involved but because it ignores empirical knowledge about how causes operate.

The mistake Angner makes in his attempt to rescue Hayek is that he takes an informal fallacy for a formal one. Let us analyze in detail what is going awry here. Angner develops his proposition in two steps. First, he reconstructs the argument scheme Hayek appears to use in such a way as to escape the fallacy. Second, he reformulates the same argument in probabilistic terms in order to make it more consistent with Hayek's writings.

Angner explicates the naturalistic fallacy that Hayek allegedly committed in the following way ("NF" for "naturalistic fallacy"):

NF (1) S is a spontaneous order.

(\therefore) S is a desirable order.

This reasoning is so obviously fallacious that it borders on abuse to even consider whether anyone in his or her right mind should subscribe to it. Indeed, it does not even matter that (1) is a "factual" premise while the conclusion is "normative": for *any* two

predicates P and Q , reasoning from “ S is P ” to “ S is Q ” is fallacious unless extra premises are supplied.

The extra premise is supplied by Angner in the following second argument, which he claims is *not* an instance of the fallacy:

- D** (1) S is a spontaneous order.
 (2) (For all x) [x is a spontaneous order \rightarrow x is a desirable order]

 (\therefore) S is a desirable order.

D is indeed a valid deductive argument. But as regards the question whether or not the naturalistic fallacy has been committed asserting **NF** or **D** does not make a difference. To see this, consider the following argument:

- AA** (1) Caldwell and Reiss claim that φ .

 (\therefore) φ .

AA is an instance of what is called an appeal to authority. Now, whether or not **AA** constitutes bad reasoning does not depend on whether or not one adds a premiss such as to make **AA** a deductively valid argument as we have done in the following:

- DAA** (1) Caldwell and Reiss claim that φ .
 (2) (For all x), [Caldwell and Reiss claim that $x \rightarrow \varphi$]

 (\therefore) φ .

As regards the appeal to authority, **AA** and **DAA** fare equally badly or equally well. The difference is only that **AA** contains an additional formal fallacy (a “non-sequitur”). But whether or not the appeal to authority is sound or illicit depends on other, extra-logical considerations such as whether or not Caldwell and Reiss are competent in the domain of φ etc.

The same is true with respect to the Angner’s attempts to formalize Hayek’s alleged committal of the naturalistic fallacy: whether or not the fallacy lurks behind the arguments depends on considerations that have nothing to do with formal logic. Suppose we have observed all spontaneous orders there are, and also that they are all desirable, normatively speaking. Disregarding the usual problems of asserting general statements (we can observe only finitely many orders whereas (2) of **D** applies to a potentially infinite number), there does not have to be a fallacy involved here. If by “spontaneous” and “desirable” (or “good” or any of its relatives) we mean different qualities and merely observe that they happen to co-occur, **D** is a valid and sound argument (*i.e.*, the conclusion follows logically from the premises and the premises are true). The reasoning becomes fallacious only if from the observation of the co-occurrence of spontaneity and desirability we conclude that something is desirable *because* it is evolved or *in virtue of the fact that* it is evolved.

To see this clearly, consider a philosophers’ stock example which concerns two natural predicates. Suppose that every organism which has a heart also has a

kidney. From this, and supposing *O* has a heart, we can infer deductively that *O* has a kidney. No fallacy has been committed. However, if we reason that *O* has a kidney *because* it has a heart, we make a mistake. Note again that it is not the structure of the given argument that tells us whether or not we fell into the fallacy but rather whether or not we infer from the truth of the material implication “(For all *x*), [*x* has a heart \rightarrow *x* has a kidney]” that something has a kidney *because* it has a heart.

Furthermore, changing the form of the argument from deductive to inductive does not affect the status of the reasoning *vis-à-vis* the natural fallacy. Angner claims that only a weakly normative reading of Hayek, based on the following argument, “captures the full complexity of Hayek’s work on cultural evolution” (Angner 2004, p. 358):

- I** (1) *S* is a spontaneous order.
 (2) (For most *x*) [*x* is a spontaneous order \rightarrow *x* is a desirable order]

 (\therefore) *S* is a desirable order.

According to **I**, then, evolved orders *tend* to be desirable, the tendency marked by the double rather than single line. Though not certainty, the premises confer a high likelihood on the conclusion (“for most *x*”).

In order to see what’s wrong with **I** we need to carefully distinguish between two different assertions. Assertion (A) is that evolved orders are always beneficial with respect to the survival of the group. Assertion (B) is that an order is good or desirable because it is fit for survival.

Both assertions are false. Evolution often fails to *guarantee* that the resulting traits are always beneficial with respect to survival. This failure can happen for a variety of reasons: circumstances or environments change; traits have not undergone selection; a trait that accidentally co-evolved with a beneficial one turns out to be harmful, etc. The second assertion is just a version of the naturalistic fallacy.

Now, if by proposing **I** Angner meant to turn assertion (A) into a probabilistic claim while keeping (B) he indeed captures Hayek’s acknowledgment that evolved orders are not always beneficial, but no ground is made with respect to the naturalistic fallacy. If, on the other hand, Angner means to turn (B) into a probabilistic statement, whether or not the fallacy is committed depends on what exactly is maintained. He might just claim that “orders that are fit for survival sometimes also happen to be desirable.” This is, of course, true and consistent with Hayek’s writings. But on a different reading the fallacy reappears. If by the claim we mean that orders which are fit for survival tend to be desirable, and those orders that are desirable are so in virtue of the fact that they are fit for survival, we do not only keep committing the fallacy but we *add a mystery*: why do some orders that are fit for survival fail to be desirable? As above, it is not the form of the argument that shows whether or not the fallacy has been committed but rather extra-logical considerations. The naturalistic fallacy is of the informal, not the formal, kind.

The point of engaging in this slightly cumbersome discussion is to show that Angner’s attempts to save Hayek by means of various argument models are somewhat beside the point. In sections 1 and 2 of this paper we have shown that Hayek did not need rescue anyway. This section demonstrates that were it the case that Hayek stood in need of rescuing, the offered solution would not work for the simple reason that the

logic chosen is inappropriate. Predicate or first-order logic simply lacks the resources to express the naturalistic fallacy (as it lacks the resources to distinguish between natural or causal laws and accidental regularities, etc.).

Hence we conclude that Angner's three theses are mistaken. First, textual and contextual evidence that Hayek fell into the naturalistic fallacy is scant rather than ample. Second, the purely "descriptive reading" of Hayek, attributed to Caldwell, was never promoted by him. A more reasonable reading of Hayek shows that many of Hayek's claims are in fact descriptive, and that he offered separate arguments for those that were normative. Third, the "weakly normative reading" is neither necessary, nor is it a successful move, to exonerate Hayek from committing the fallacy.

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