CRITICAL NOTICES

ESSENTIALISM AND REFERENCE TO KINDS: THREE ISSUES IN PENELOPE MACKIE'S *HOW THINGS MIGHT HAVE BEEN: INDIVIDUALS, KINDS, AND ESSENTIAL PROPERTIES*

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As her title suggests, Penelope Mackie's book[1] is concerned with both essentialism about individuals and essentialism about kinds. The introductory chapter focuses on both topics, but most of the book is concerned with essentialism about individuals while only the tenth and final chapter is fully devoted to essentialism about kinds. More particularly, Chapter 10 is primarily concerned with the relationship between substantive essentialist claims about kinds and the direct reference theory of natural kind terms advocated by Kripke and Putnam. My remarks here will be confined to issues that are taken up in Mackie's last chapter, but my discussion will make use of similarities between essentialism about kinds and essentialism about individuals and also of similarities between the theory of direct reference as it applies to (simple) natural kind terms and the theory of direct reference as it applies to (simple) individual (i.e., singular) terms.

I focus on issues concerning kinds largely because I am sympathetic to Mackie's conclusions concerning individuals. She champions a view according to which individuals have virtually no interesting essential properties. In the course of defending this radical view, Mackie examines rival views in great detail. Her respect for her opponents and for philosophical argumentation is evident in the seriousness of her treatments of their arguments. I strive to emulate that spirit here in these critical remarks.

The discussion will take up three issues on which I disagree with Mackie. First: Is there a characterization of essentialism that applies uniformly to both individuals and natural kinds? Mackie says no while I say yes. Second: Are description theories of natural kind terms compatible with substantive essentialist claims about kinds? Mackie says no while I say yes. Third: Does the theory of direct reference for (simple) natural kind terms have nontrivial essentialist import? Mackie says yes (although somewhat hesitantly) while I say no.

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1. P. Mackie, *How Things Might Have Been: Individuals, Kinds, and Essential Properties* (Oxford University Press, 2006).

Question 1: Is There a Characterization of Essentialism that Applies Uniformly to Both Individuals and Natural Kinds?

At the beginning of her book, Mackie "treat[s] essentialism as a theory that involves the attribution of essential properties to things" (p. 12). Mackie thinks that this natural understanding works in the case of essentialist claims about individuals, but that it does not do so well in the case of essentialist claims about kinds. As a result, Mackie winds up endorsing a complicated taxonomy of essentialist claims—a taxonomy according to which there is very little that all and only essentialist claims have in common. In this section, I will first lay out Mackie's taxonomy of essentialist claims. After that, I will present the argument that leads her to her complicated taxonomy. Finally, I will show that Mackie's argument is flawed and argue that the natural understanding of essentialism applies uniformly to individuals and natural kinds.

According to Mackie, all essentialist claims about individuals are, just as one would expect, *de re* essentialist claims—where the *res* in question are individuals. Sentences (1)–(3) provide us with examples of this sort.

(1) $\Box$Hesperus is Hesperus
(2) $\Box$Charles has his actual biological origin
(3) $\Box$Yoko is human[2]

Each of (1)–(3) expresses a claim that a particular individual has a certain property essentially. Claim (1) says of Hesperus that the property of being identical to Hesperus is essential to it;[3] (2) says of Charles that the property of having a certain biological origin (namely, his actual one) is essential to him; and (3) says of Yoko that the property of being human is essential to her. In each of these sentences, there is a rigid designator[4] of an individual; so each meets Mackie's "informal criterion" of a "*de re* modal sentence," which is that "a sentence containing a modal operator counts as *de re* if and only if it involves either quantification into a modal context or the presence of a rigid designator within the modal context" (p. 7).[5]

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2. Purists may feel the need for an existence clause in these examples—as in "$\Box$If Hesperus exists, then Hesperus is Hesperus." When it makes no substantive difference to the discussion, I do not fuss over that detail.
3. Some would say instead that (1) says of Hesperus that the property of being self-identical is essential to it. I doubt that this is what (1) says, but it makes no difference to this discussion.
4. An expression (in a single use) rigidly designates its designatum if it designates that very thing with respect to every possible world in which that thing exists and does not designate anything else with respect to any possible world.
5. Mackie's disjunctive criterion is puzzling in at least two ways. First, one wonders why the criterion is stated disjunctively. Variables (under value assignments) are rigid designators, so the first disjunct is subsumed under the second. Second, one wonders why the first disjunct uses the phrase "a modal context" while the second uses "the modal context." Since there is no important difference between these two when the sentence in question has only a single occurrence of a modal operator, and since the sentences that are of immediate interest are such sentences, no harm is done by taking this to capture Mackie's intent: A sentence containing a single occurrence of a modal operator counts as *de re* if and only if it contains a rigid designator within the scope of that modal operator. But some puzzles remain. Mackie wants the result that

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In the case of essentialist claims about kinds, Mackie contends that there are two distinct formulations of such claims and that these two formulations are associated with two very different kinds of claims. Sentences (4)–(6) offer examples of what Mackie thinks of as (*Kripkean*) de re *essentialism* while (7)–(9) offer examples of what she thinks of as *(Putnamian) predicate essentialism*.

(4) $\Box$Water = H_2O
(5) $\Box$Gold has the atomic number 79
(6) $\Box$The kind *tiger* is a subkind of the kind *mammal*[6]
(7) $\Box\forall x(x$ is a sample of water $\leftrightarrow x$ is composed of H_2O molecules)
(8) $\Box\forall x(x$ is a piece of gold $\rightarrow x$ is composed of stuff with atomic number 79)
(9) $\Box\forall x(x$ is a tiger $\rightarrow x$ is a mammal)

Each of (4)–(6) expresses a claim that a particular kind has a certain property essentially. Claim (4) says of (the kind) water that the property of being identical to (the kind) H_2O is essential to it; (5) says of (the kind) gold that the property of having atomic number 79 is essential to it; and (6) says of the kind *tiger* that the property of being a subkind of the kind *mammal* is essential to it. In each of these sentences, there is a rigid designator of a kind; so again each meets Mackie's "informal criterion" of a "*de re* modal sentence." Sentences (4)–(6) are then fully on a par with (1)–(3). Each of (1)–(6) makes a *de re* essentialist claim—where the *res* in (1)–(3) are individuals and in (4)–(6) kinds. And each of (1)–(6) involves a rigid designator—where the rigid designators in (1)–(3) are singular terms and in (4)–(6) general terms.[7]

Mackie thinks that (7)–(9) are formulations of essentialism about natural kinds, but that they are very different from (4)–(6).

"So far, I have treated essentialism as a theory that involves the attribution of essential properties to things. But there are views, commonly described as 'essentialist', that do not conform to this pattern. I refer to views that assert a necessary a posteriori connection between properties or predicates." (p. 12)

If we speak loosely, we can say that (7)–(9) "attribute essential properties to kinds." But of course . . . strictly speaking, they do nothing of the sort. Statements like (7)–(9) do not explicitly ascribe essential properties to any-

"$\Box$The even prime is less than three" does not count as a *de re* modal sentence. (See her (5) on p. 5.) But the *expression* "the even prime" is a rigid designator of the number 2, so that the sentence qualifies as *de re* under her criterion. (Russellians may substitute "denoter" for "designator," as needed.) It is safe to assume that she also wants the result that "$\Box(x)Fx$" does not count as a *de re* modal sentence. But the *expression* "*x*" (which occurs twice in the sentence in question) is a rigid designator (under a value assignment), so that it too qualifies as *de re* on Mackie's criterion. The following revision yields the desired results: A sentence containing a single occurrence of a modal operator counts as *de re* if and only if a *nondescriptive* rigid designator occurs *unbound* within the scope of that modal operator. (Note that any occurrence of an unbindable rigid designator is unbound.)

6. Mackie actually uses the sentence "$\Box$The kind *tiger* is mammalian." I have changed it to a sentence that sounds less odd to my ear.

7. Mackie does not herself make this distinction between singular and general terms. She takes (4)–(6) to involve the rigid designation of kinds by *singular terms*.

thing: neither to kinds nor to the things that belong to those kinds. What they do is to specify properties essential *for* kind membership. . . . [S]tatements like (7)–(9) do not involve a commitment to *de re* essentialism. (p. 170)

On the other hand, a formulation suggested by Putnam's discussion ". . . *dispenses with the designation of kinds by singular [sic] terms* in favour of the postulation of necessary but a posteriori connections between predicates". (p. 169, my emphasis)

According to the second of the quotations above, (7)–(9) neither explicitly nor implicitly attribute essential properties to kinds. Evidently then, Mackie thinks, for example, that (7) postulates a necessary connection between the property *being a sample of water* and the property *being composed of H₂O* without attributing any essential property to the kind *water*. The third of the quotations reveals that although she thinks that (7)–(9) involve certain predicates like "is a sample of water," "is a piece of gold," and "is a tiger," she thinks that these sentences do not involve "the designation of kinds by singular [*sic*] terms." She says that sentences like (7)–(9) do not count as *de re* modal sentences according to her criterion (p. 12). Evidently then, Mackie thinks that the predicate "is a sample of water" does not contain a term that designates the kind *water*.[8]

So, one dimension of the complexity of Mackie's taxonomy is simply that she thinks that there is only one kind of essentialism about individuals (*de re* essentialism) whereas she thinks that there are two kinds of kind-essentialism ((Kripkean) *de re* essentialism and (Putnamian) predicate essentialism).[9] Another layer of complexity is added by the fact that she thinks that in the case of kind-essentialism but not in the case of essentialism about individuals, the epistemic status of a claim is relevant to whether it is classified as essentialist or not. According to Mackie, some essentialist claims about individuals—claims like (1)—are knowable *a priori* while others—like (2) and (3)—are knowable only *a posteriori*. But, she thinks, all kind-essentialist claims are knowable only *a posteriori*.[10] (So, e.g., since we can know *a priori* that necessarily water is water, Mackie says that this claim does not count as essentialist at all.)

To explain exactly how Mackie comes to embrace this complicated taxonomy will take a little bit of time. But I can say quickly that Mackie's

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8. All these considerations make it puzzling why Mackie considers (7)–(9) as making any sort of claim *about kinds* at all, so I will henceforth make use of the phrase "kind-essentialism" instead of "essentialism about kinds" when appropriate.

9. It is unfortunate that Mackie chooses the term "predicate essentialism" rather than "property essentialism." Sentences (7)–(9) postulate a plausible necessary connection between the *properties* of *being a tiger* and *being a mammal*—namely that it is necessary that any instance of the one property is an instance of the other. They do not postulate an implausible necessary connection between *predicates*. (It is obviously not necessary that the predicates "is a tiger" and "is a mammal" are such that anything that is in the extension of the first is in the extension of the second: after all, "is a tiger" might have meant *is a number* while the meaning of "is a mammal" was just what it actually is.)

10. In attributing this to Mackie, I rely on the assumption that a *de re* essentialist claim about a kind cannot be knowable a *priori* if the "corresponding" predicate essentialist claim is knowable only a posteriori. (I beg my reader's patience: this note will be easier to understand after I have gone through Mackie's argument for her taxonomy.)

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taxonomy is so complicated primarily because she thinks that it is little more than a historical accident that claims like (7)–(9) have come to be considered essentialist at all: "[I]t is difficult to see how any definition of 'essentialism' can be unproblematic if it is to apply to both individuals and natural kinds. What appears to have happened is that the term has come to embrace both the attribution to things of essential properties and the postulation of necessary a posteriori truths" (pp. 13–14).

Mackie begins her argument for her complicated taxonomy by claiming that a sentence like (7) does not count as *de re* according to her criterion. So something must be done, she thinks, if she is to find a way to count (7) as essentialist. She considers the idea that she might appeal to an (at least alleged) equivalence between (7) and (4), together with the fact that (4) does count as *de re* by her criterion, to allow that (7) is, in an extended sense, also *de re* and hence essentialist. But she rejects this move on the ground that such an appeal would force her to count

(10) $\Box\forall x(x$ is an oculist x is an eye doctor)

as *de re* in the extended sense, since there is a similar (at least alleged) equivalence between it and

(11) $\Box$oculist = eye doctor,

which counts as *de re* in the original sense. Mackie thinks it is undesirable to count (10) as essentialist, since doing so would mean that "Putnam's 'essentialism' about natural kinds will be no more essentialist than any statement of an a priori coincidence of predicates [like (10)], and this seems absurd" (p. 13). In the face of this, she briefly considers withholding the title "essentialist" from claims like (7). But since she thinks that this would be too much at odds with established usage, Mackie decides to allow "non-*de re* modal sentences stating necessary connections between predicates to count as essentialist, if, but only if, those connections are a posteriori" (p. 13). This is how she comes to introduce her second kind of kind-essentialism—predicate essentialism. This allows her to count (7) but not (10) as essentialist. This still leaves her with the "problem" that (11) still counts as essentialist by virtue of being *de re* by her criterion. So, she proposes to count "*de re* essentialist statements about kinds . . . as examples of "essentialism about kinds" only when the "corresponding" formulations in terms of necessary connections between predicates are a posteriori rather than a priori" (p. 171).[11] Thus, she finds a way not to count (11) as essentialist. And in this way Mackie ends up with her complicated taxonomy.

Going now backward through the considerations, Mackie is wrong to think that there is a problem with counting (11) as essentialist. Just as (1) is essentialist even though it is trivial, so too is (11). Trivial claims are no less *essentialist* for their being trivial. This observation has the effect of bringing Mackie's first kind of kind-essentialism—*de re* kind-essentialism—fully in line with essentialist claims about individuals: in both cases, the epistemic status of a claim is

11. At this point, the previous footnote should be easier to understand.

irrelevant to its metaphysical status. Moving back a step in Mackie's argument, there is no absurdity in allowing that Putnam's essentialism about natural kinds is no more *essentialist* than (10). Again, I stress that some essentialist claims, like (10), are trivial, while others, like (7), are substantive, even though both are equally essentialist. This would allow us to use the (at least alleged) equivalence between (7) and (4) to count (7) as *de re* essentialist. But, this move is unnecessary because, going back now one more step in Mackie's argument (7) *already* counts as *de re* by her criterion—at least if we allow that the predicate "is a sample of water" is not semantically simple (that is, that it has meaningful parts, like "is" and "water") and that "water" as it occurs in (7) functions to designate the kind *water* rigidly just as it does in (4). (Appearances certainly suggest this—just as they suggest that the predicate "is a friend of Michael" is not semantically simple and that "Michael" as it occurs in that predicate functions to designate the individual Michael rigidly.) Mackie offers no argument at all that this is not the case, and in the absence of a powerful argument to the contrary, we should take appearances at face value.[12]

This examination of Mackie's argument reveals that there was no good reason for her to deviate from the simplest of taxonomies: a claim is essentialist just in case it entails that something has a property essentially (with "something" construed broadly enough to cover both individuals and kinds). There is no good reason not to think that each of (7)–(9) makes an essentialist claim that is genuinely about a kind. For example (7) attributes to the kind water the essential property of being such that all and only its instances are instances of the property of being composed of H_2O molecules. There is no reason not to see essentialism about kinds as fully of a piece with essentialism about individuals. A happy result. All the happier since it was not in fact just a historical accident that Putnam's claims and Kripke's claims in this area were thought to have a lot in common. Putnam said, "Kripke calls a designator 'rigid' (in a given sentence) if (in that sentence) it refers to the same individual in every possible world in which the designator designates. If we extend this notion of rigidity to substance names, then we may express Kripke's theory and mine by saying that the term 'water' is *rigid*" (p. 707).[13] Putnam, like Kripke, thought that "water" was a rigid designator even in the sorts of claims that interested him. Further, there is no good reason to think that in the case of claims about kinds but not in the case of claims about individuals, the epistemic status of a claim is relevant to its metaphysical status. Putnam (and Kripke for that matter) focused on claims about kinds that are necessary and knowable only *a posteriori* for the same reason Kripke focused on claims about individuals that are

12. Scott Soames in *Beyond Rigidity* (S. Soames, *Beyond Rigidity* [Oxford University, 2002]) held a view like Mackie's. Nathan Salmon argued against it in "Naming, Necessity, and Beyond" (N. Salmon, "Naming, Necessity, and Beyond," *Mind* 112.447 [2003], pp. 475–492. [Reprinted in Salmon 2005b]) and in "Are General Terms Rigid?" (N. Salmon, "Are General Terms Rigid?" *Linguistics and Philosophy* 28 [2005a], pp. 117–134). In "What Are Natural Kinds?" (S. Soames, "What Are Natural Kinds?" *Philosophical Topics*. Forthcoming), Soames counts the view that Salmon urged as "conventional wisdom." I very much doubt that Salmon's view enjoys any widespread acceptance in spite of the fact that (and perhaps because) it is the completely natural view.
13. H. Putnam, "Meaning and Reference," *The Journal of Philosophy* 70 (1973), pp. 699–711.

necessary and knowable only *a posteriori*: they are more *interesting*—not more *essentialist*—than the ones that are necessary and knowable *a priori*.

Mackie might object that one can accept (7) while eschewing a commitment to kinds—so that if we are going to count someone who has such a combination of views as an essentialist, we will need a broader characterization of the notion than I have given. I agree with this. However, this is not the concession that it may appear to be.

Just as one may accept, the sentence (7) while eschewing a commitment to kinds, so too, one can accept any of sentences (1)–(3) while eschewing a commitment to individuals. After all, a philosopher is free to deny that any particular sentence says what it (at least) appears to say. And it may be that there are good reasons to extend our understanding of essentialism to allow that one can be an essentialist about individuals or kinds without thinking that there are individuals or kinds, so that these imagined philosophers who speak with the vulgar but think with the (overly) learned can count as essentialists. I am dubious of this, but I am not now in the business of taking a stand on that question. What I *am* claiming is that if what one is after is to make room in one's characterization of essentialism for claims like the ones that Kripke and Putnam made about individuals and kinds, then a simple and uniform characterization is available and decidedly preferable.

Question 2: Are Description Theories of Natural Kind Terms Compatible with Substantive Essentialist Claims about Kinds?

In *Reference and Essence*, Nathan Salmon argues that "Kripke and Putnam made unsubstantiated claims, indeed false claims, to the effect that the theory of direct reference has nontrivial essentialist import" (p. xvii).[14] In the nearly 30 years that have passed since Salmon's book was first published, his claim has gained wide acceptance. Indeed, from our current vantage point, his claim is almost too obvious. How could a theory about the *semantics* of simple terms for individuals and kinds have any substantive *essentialist* upshots concerning those individuals and kinds?

The bulk of Chapter 10 of Mackie's book is concerned with the issue of whether the theory of direct reference "leads to" substantive essentialist claims. Before taking up the version of this question that Salmon addresses in *Reference and Essence*, Mackie first discusses the claim, which she attributes to Stephen Schwartz, that "there is an (admittedly diluted) sense in which the Kripke-Putnam semantic theory 'leads to' essentialism about natural kinds, as follows: the K-P semantic theory is consistent with essentialism; the semantic theories that it replaced are not; essentialism is intrinsically plausible, but there was a barrier to its acceptance as long as the old semantic theories reigned" (p. 175). She goes on to say, "No one, I think, could seriously doubt that the K-P semantic theory is consistent with essentialism. The issue thus turns on whether it is true that the semantic theories it replaced are not" (p. 175). She argues that

14. N. Salmon, *Reference and Essence* (Prometheus Books, 2005b).

the old semantic theories—description theories—are not compatible with the existence of truths that concern membership in the kinds designated by the terms within the theory's purview and that are necessary and knowable only *a posteriori*. Thus, Mackie is committed to the view that description theories about natural kind terms entail that there are no truths concerning membership in the relevant kinds which are necessary and knowable only *a posteriori*. The claim is suspicious. How could a theory about the *semantics* of simple terms for natural kinds have any substantive *anti-essentialist* upshots concerning natural kinds? Here is Mackie's argument.

These earlier theories are description theories of natural kinds terms, with the following characteristics:
(a) The relevant descriptions are associated a priori with the kind term by all or at least some (e.g., expert) competent users of the term.
(b) The descriptions give necessary and sufficient conditions for kind membership.
(c) The relation that holds between a sample (or member) of the kind and the relevant descriptions is simply that of *fit*. In particular, no causal relations between users and sample (or member) are involved.

Let the relevant descriptions be abbreviated to "D," and let there be some property M—perhaps a microstructural property—which an essentialist would regard as (metaphysically) necessary for belonging to the kind, although it is not a priori that members of the kind have M. Then the following difficulty obviously arises. Suppose that there could, metaphysically speaking, be items that had D and lacked M. By (a)–(c), such items would belong to the kind. Hence the proponent of the description theory cannot accept that it is metaphysically necessary that items belonging to the kind have M, contrary to what the essentialist claims. (pp. 175–176)

There are problems with Mackie's characterization of description theories of natural kind terms, and these problems lead to problems in her argument. Let me begin then by giving a proper characterization of description theories of natural kind terms. A description theory for a semantically simple natural kind term is a theory according to which (i) those who are competent with the term associate purely qualitative properties with the term, (ii) these properties determine the referent of the term (so that the referent of the term is whatever has the properties), and (iii) these properties give the semantic content of the term. Such theories are called "description theories" because the purely qualitative properties that are semantically associated with a term are the properties involved in what some description expresses. We can characterize a description theory for a semantically simple natural kind term as a theory according to which the term is semantically equivalent to (that is, synonymous with) a definite description.[15] Two points about such description theories will be especially important to bear in mind in assessing Mackie's argument. The

15. The description need not be one that already occurs in the language but just one that it is possible to add to the language.

first is that a theory of this type need not say that a natural kind term (like "gold") is semantically equivalent to a *nonrigid description* (like "the soft yellow metal used in jewelry") but is free to say instead that it is semantically equivalent to a *rigid description* (like "the element with atomic number 79"). The second is that a theory of this type need not say that *variables* (under value assignments) or their natural language analogs are semantically equivalent to descriptions.

It is also important to bear in mind that such theories are implausible, for reasons that Kripke and Putnam famously gave. If a description D is semantically equivalent to a kind term T_k, then sentences of the form of "T_k is F" (where F is some predicate involved in an appropriate way in D) express propositions that are necessary and knowable a *priori*. So, for example, if "the soft yellow metal used in jewelry" is semantically equivalent to "gold," it follows that "gold is used in jewelry" expresses a proposition (namely, that the soft yellow metal used in jewelry is used in jewelry) that is necessary and knowable *a priori*. It does not follow from this view that the *proposition* that gold is used in jewelry is necessary and knowable *a priori*. After all, this description theory denies that "gold is used in jewelry" expresses that gold is used in jewelry (though its advocate would not put it that way).[16] On this view, "gold is used in jewelry" expresses that the soft yellow metal used in jewelry is used in jewelry. But the proposition that the soft yellow metal used in jewelry is used in jewelry is not the proposition that gold is used in jewelry since the first is necessary and knowable *a priori* while the second is neither. This means that while Mackie's (b) may be correct (and is correct, given that the description associated with the relevant term and the term itself do pick out the same kind) a closely related claim, which is a claim that Mackie's argument crucially depends on, is not correct. On a description theory, the descriptions do not give necessarily necessary and sufficient conditions for *kind membership*. What they do is give necessarily necessary and sufficient conditions for being something to which the *kind term (in its actual use) applies*. (This is to say that according to a description theory, a term and its associated description have the same semantic intension.[17]) A description theory is a *semantic* theory.

With these preliminaries out of the way, it will be helpful for me simply to show that Mackie's incompatibility claim is false, before turning to exposing the flaws in her argument. Consider first a description theorist who holds that "gold" means what "the element with atomic number 79" means. There is nothing to prevent this theorist from accepting the sentence "necessarily gold is a metal." This sentence meets Mackie's explicitly stated criterion for a *de re* modal sentence, even according to this theorist since "the element with atomic number 79" rigidly designates gold. Furthermore, there is nothing to prevent this theorist from holding that the proposition that she thinks this sentence expresses (namely that necessarily the element with atomic number 79 is a metal) is knowable only *a posteriori*. Still further, there is nothing to prevent

16. Such denials are, of course, natural upshots of *incorrect* semantic theories.
17. The semantic intension of an expression is a function from possible worlds to semantic extensions.

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this theorist from sensibly holding it is knowable only *a posteriori* that the element with atomic number 79 (which is gold) is such that necessarily it is a metal. Hence, there is no inconsistency in holding a description theory of "gold" and accepting a substantive essentialist claim about gold.[18]

To take a slightly different case, consider a description theorist who holds that "gold" means what "the soft yellow metal used in jewelry" means. There is nothing to prevent this theorist from accepting the sentence "the soft yellow metal used in jewelry is such that necessarily it has atomic number 79." There is nothing to prevent this theorist from holding that the sentence "the soft yellow metal used in jewelry is such that necessarily it has atomic number 79" expresses that the soft yellow metal used in jewelry is such that necessarily it has atomic number 79, since one can consistently adopt a description theory of "gold" while rejecting a description theory of "it." There is nothing to prevent this theorist from sensibly holding that the proposition that the soft yellow metal used in jewelry is such that necessarily it has atomic number 79 is knowable only *a posteriori*. Hence, we see again that there is no inconsistency in holding a description theory of "gold" and accepting a substantive essentialist claim about gold.[19]

By now, we are in a good position to see what is wrong with Mackie's argument. She begins by saying, "Suppose that there could, metaphysically speaking, be items that had D and lacked M." The idea seems to be to invite us to make a supposition like this one, for example: that it is metaphysically possible that there are items that are samples of the soft yellow metal used in jewelry that are not (composed of) atoms with 79 protons. She goes on to say, "By (a)–(c), such items would belong to the kind." That is true, if we understand (b) as meaning that the descriptions give necessarily necessary and sufficient conditions for kind membership. But, on that understanding (b) is not a commitment of a description theory. What a description theory is committed to is the claim that such items are properly *called* "gold." Mackie next says, "Hence the proponent of the description theory cannot accept that it is metaphysically necessary that items belonging to the kind have M, contrary to what the essentialist claims." This is not right. What *is* right is that the proponent of the description theory *who accepts the supposition* cannot accept the *sentence* "Necessarily items belonging to the kind gold are (composed of) atoms with 79 protons." But she can accept this sentence: "There is a kind *k* that is the soft yellow metal used in jewelry and necessarily items belonging to *k* are (composed) of atoms with 79 protons." Since there is nothing in the description theory that precludes its advocate from holding that that sentence expresses

18. I will assume that an essentialist claim is substantive if and only if it is knowable only a posteriori. I am not entirely confident in this assumption. I am however, confident that my main points will not be undermined if this assumption is incorrect.
19. I note in passing that if Mackie's argument works for descriptions theories about simple natural kind terms and essentialist claims about the associated kinds, then it should also work for description theories about simple singular terms and essentialist claims about the associated individuals. Graeme Forbes champions a description theory of proper names while simultaneously advocating, for example, that it is knowable only a posteriori that necessarily Socrates is human. Although I am not myself attracted to this combination of views, it is clear that they are not contradictory.

what it appears to express (namely a substantive essentialist claim about gold), Mackie's argument does not show that the proponent of this description theory who accepts the supposition cannot also consistently embrace a substantive essentialist claim about gold. Furthermore, even if we suppose that it does show this, this is not enough to establish her conclusion. At best, it would show that *three* claims—the description theory, the essentialist claim, and the supposition—are incompatible. But this would show that the description theory and the essentialist claim are incompatible *only if* the supposition is itself a logical truth. Since it is not a logical truth that it is metaphysically possible that there are items that are samples of the soft yellow metal used in jewelry that are not composed of atoms having 79 protons, Mackie's argument fails in yet another way.

Question 3: Does the Theory of Direct Reference for (Simple) Natural Kind Terms Have Nontrivial Essentialist Import?

Mackie devotes most of Chapter 10 to a discussion of this question. As I mentioned at the beginning of the previous section, Salmon argued in *Reference and Essence* that one cannot derive any substantive essentialist claims from the theory of direct reference (hereafter "DR") together with uncontroversial premises (empirical or otherwise). For short, we can say, "Salmon argued that DR+ does not have nontrivial essentialist import." Although she is generally sympathetic to the *spirit* of Salmon's claim, Mackie contends—or perhaps I should say that she worries—that Salmon's claim is wrong in *letter*. I argue that Mackie's contention is wrong—or that she is wrong to worry.

Direct Reference

I begin by saying a bit about DR. The theory is most familiar in its version concerning ordinary proper names. The main thesis of the view is that ordinary proper names are nondescriptional.[20,21] The claim that a term is nondescriptional *nearly entails* that it is a rigid designator. I say "nearly entails" because of the possibility that a term that is nondescriptional is nonetheless stipulated to work in the following way: it designates Penelope Mackie at the actual world, Saul Kripke at some other possible world, and Hilary Putnam at some still other possible world. Since it is uncontroversial that this possibility is not a live one in the case of ordinary proper names, DR+ (if not DR alone) entails that ordinary proper names are rigid designators. If one advocates DR for names, one is likely to take a natural step further and to advocate Millianism for names—the view that the semantic content of a name is simply its

20. Salmon (2005b): 22.
21. The contrast is with description theories of proper names, which are characterized *mutatis mutandis* as I characterized description theories of simple natural kind terms in the previous section.

referent. Sometimes the phrase "the theory of direct reference" is taken to be synonymous with "Millianism." Salmon does not, and I will not here, use the phrase in that way.

So much for DR+ about names. What about DR+ for natural kind terms? I take the most simple-minded approach, taking it to be the analogous view that simple natural kind terms are nondescriptional rigid designators of natural kinds.[22] Just as one can contrast semantically simple *singular* terms with semantically complex ones—"Kripke" *versus* "the author of *Naming and Necessity*"—one can contrast semantically simple *general* terms with semantically complex ones—"water" *versus* "the colorless, odorless, thirst-quenching liquid that fills the lakes and streams." And just as DR+ about names holds that although "Kripke" and "the author of *Naming and Necessity*" designate the same individual, the first does so nondescriptionally and rigidly while the second does so descriptionally and nonrigidly, so DR+ about natural kind terms holds that although "water" and "the colorless, odorless, thirst-quenching liquid that fills the lakes and streams" designate the same kind, the first does so nondescriptionally and rigidly while the second does so descriptionally and nonrigidly.[23]

Salmon's Question and Answer

The question that Salmon—and therefore Mackie—is interested in is this: "Given only whatever logical devices one may need . . . and given further whatever non-question-begging, purely empirically verifiable, or otherwise philosophically uncontroversial facts one may need . . . is it possible to derive a substantive and nontrivial form of essentialism concerning natural kinds or individuals . . . from the philosophy of language, i.e. from syntax, the theory of reference and modal semantics?"[24] Salmon's answer is negative.[25]

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22. Salmon (2005b, pp. 44–45) says, "If a nondescriptional general term applies to some things but not others, then there must be *something* that the individuals in its extension have in common, by virtue of which the term applies to them but not anything else, even though the term is nondescriptional. The objects in its extension must be *of the same kind*, and the term must be a nondescriptional label for a certain *kind* of thing. In fact, it is characteristic of the direct reference theory of general terms to speak of certain single-word common nouns almost as if they were proper names that refer to certain *kinds* of things."

23. A lot has been written about just how to extend DR+ about proper names to kind terms. I do not mean to suggest that the extension I suggest here is uncontroversial. I do mean to suggest that it is natural. A predicate is typically taken to designate with respect to each possible world the set of its instances at that world. So, if ν is a simple general term, the corresponding predicate ⌜is ν⌝ or ⌜is-a ν⌝ designates with respect to each possible world the set of instances at that world of the kind designated by ν. Typically then, although ν will designate rigidly, its corresponding predicate will not—on the assumption that, for example, some possible worlds have more or fewer tigers than this one.

24. Salmon (2005b): 90.

25. In the concluding section of *Reference and Essence*, Salmon states his conclusion more cautiously, saying that neither Kripke nor Putnam has demonstrated that DR+ has nontrivial essentialist import (footnote 13, p. 217). The stronger claim is made in the body of the book (footnote 13, p. 91).

Salmon's strategy for defense of the claim that it is not possible to derive substantive essentialist claims from DR+ is to (re)construct[26] the best attempts at such derivations and then show that these derivations depend on substantive essentialist claims that are not themselves parts of DR+.[27] Because I think it will be helpful in thinking about the case concerning natural kinds to look at the case concerning individuals, I will display one instance of the "I(ndividual)-Mechanism Schema" (p. 173) along with two instances of the "K(ind)-Mechanism Schema" (p. 170).[28]

S(almon) 0: An Instance of the I(ndividual)-Mechanism Schema (p. 172, with a change in labeling)

(I-1) It is necessarily the case that: Woody is *dthat*(the *here*).
(I-2) The *here* was originally constructed from hunk of wood *H*.
(I-3) Being the very same table as something consists, at least in part, in having the same original material composition.

Therefore

(I-4) It is necessarily the case that: Woody, if it exists, was originally constructed from hunk of wood *H*.

S(almon)1: An Instance of the K(ind)-Mechanism Schema (pp. 166–167, again with a change in labeling)

(K-1) It is necessarily the case that: something is a sample of water if and only if it is a sample of *dthat*(the same substance that *this* is a sample of).
(K-2) *This* (liquid sample) has the chemical structure H_2O.
(K-3) Being a sample of the same substance as something consists in having the same chemical structure.

26. Salmon takes himself to be fleshing out Kripke's and Putnam's arguments. Kripke, in the famously comical footnote 2 to the preface of *Naming and Necessity* (S. Kripke, *Naming and Necessity* [Harvard University Press, 1980]), distances himself from these arguments. Putnam, on the other hand, says that Salmon "reconstructs and clarifies recent arguments in an exemplary way" (from the dust jacket of *Reference and Essence* in its 1981 Princeton University Press version).
27. Mackie reports on Salmon's strategy at pp. 181–182. See footnote 13, pp. 91–92.
28. I give these arguments in quasi-English, but Salmon ultimately gives all of these arguments in a formal language. He is concerned with whether one can formally derive a *sentence* with substantive essentialist import from *sentences* to which DR+ is committed. Because of the way Kaplan's "*dthat*" operator works—it combines with a definite description *D* to form a term the content of which is just the thing designated (or denoted) by *D*—as far as I can tell, the propositions expressed by the premises of the arguments Salmon presents do not entail the proposition expressed by the conclusion in spite of the fact that the conclusion sentence is in fact a logical consequence of the premise sentences. I will probably slide around between propositions and sentences. I hope to do so in a way that does not matter. For what little it is worth, I note that (K-4) is not (7) since (K-4) is a conditional while (7) is a biconditional.

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Therefore

(K-4) It is necessarily the case that: every sample of water has the chemical structure H_2O.

S(almon)2: Another Instance of the K(ind)-Mechanism Schema

(p. 169, again with a change in labeling)

(K-1′) It is necessarily the case that: something is a sample of water if and only if it is a sample of *dthat* (the colorless, odorless, tasteless, thirst-quenching liquid substance that fills *that* lake and *that* ocean).

(K-2′) Some sample of the colorless, odorless, tasteless, thirst-quenching liquid substance that fills *that* lake and *that* ocean has the chemical structure H_2O.

(K-3′) Being a sample of the same substance as something consists in having the same chemical structure.

(Same as [K-3])

Therefore

(K-4′) It is necessarily the case that: every sample of water has the chemical structure H_2O.

(Same as [K-4])

Salmon's assessment of each of these derivations is basically the same. In each case, the first premise is supposed to be a consequence of DR+. About (K-1), he says: "[It] is our analysis of Putnam's suggested ostensive definition of water [where an ostensive definition is supposed to 'explain the meaning' and thereby fix the designatum of the relevant term]. We have seen that [it] may be taken as an object language formulation of the assertion that the term 'water' rigidly designates a certain substance. As such, [it] may be taken as coming from the theory of direct reference."[29] About (I-1), he says this: "As in the case of the modal argument concerning water, the first premise of the argument concerning Woody, may be thought of as an object language introductory "definition" for the proper name "Woody," a definition that fixes the name as a rigid designator of the before the speaker. As such, premise [(I-1)] may be regarded as an assertion of the theory of singular direct reference."[30] In each case, the second premise is supposed to be an uncontroversial empirical fact—and hence also a part of DR+. Thus, Salmon takes the main question to center on the status of the third premise in each case. Salmon says that these claims have nontrivial essentialist import and are not themselves consequences of DR+. And so, Salmon concludes that these attempted derivations fail to show that a substantive essentialist claim can be derived simply from DR+. To be clear: Salmon thinks the arguments are sound and that the conclusions are substantive essentialist claims; however, he does not think that all the premises are themselves parts of DR+ alone.

29. Salmon (2005b): 176.
30. Ibid: 182.

Mackie notes that according to Salmon any of a number of different "definitions" for "water" can function as the first premise in a purported derivation. Indeed, we see that S1 uses an ostensive definition of "water" while S2 uses an operational definition of "water." So, she wonders "just when does a premise purporting to give the semantics of ['water'] count as a consequence or assertion of the direct reference theory?" (p. 185).[31] If "definitions" like the ones in her arguments M1 and M2 (below) count, then it seems we *can* derive substantive essentialist claims from DR+.

M(ackie)1 (p. 185, with a change in labeling)

A It is necessarily the case that: something is a sample of water if and only if it is a sample with *dthat* (the scientifically fundamental property or properties that this has).
B The scientifically fundamental property that this has is having the chemical structure H_2O.

Therefore

C It is necessarily the case that: every sample of water has the chemical structure H_2O.
(Same as [K-4])

M(ackie)2 (pp. 185–186, with a change in labeling)

(a) It is necessarily the case that: something is a sample of water if and only if it is a sample with *dthat* (the chemical structure that *this* has).
(b) *This* (liquid sample) has the chemical structure H_2O.
(Same as [K-2])

Therefore

(c) It is necessarily the case that: every sample of water has the chemical structure H_2O.
(Same as [K-4])

Mackie's thought seems to be that a DR theorist about "water" could "give the meaning" of "water" with the first premise of M1 or of M2, just as Putnam "gives the meaning" of "water" with the first premise of S1 or S2. And she thinks that if a DR theorist did "give the meaning" of "water" in one of these ways, then one could derive from this and the uncontroversial second premise

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31. Mackie has "the expression '*x* is a sample of water' " where I have "water" (in square brackets). I have made the change since what is at issue is premises that purport to give the meaning of the kind term "water" and not the open formula "*x* is a sample of water," whose meaning is presumably compositionally determined. This difference is significant. Just as we saw in the discussion of Question 1, Mackie fails to see that the direct reference theory applies to a term like "water" as it occurs in a predicate like "is a sample of water" (and as it occurs in an open formula like "*x* is a sample of water").

of the relevant argument, the conclusion, which is a sentence that has substantive essentialist import. She despairs of a way to "pinpoint an interesting sense of the question whether essentialism can be derived from the semantic theory of direct reference that will allow us to ignore, as irrelevant, purported "Derivations" such as M1 and M2" (p. 187).

Assessment of Mackie's Criticism or Worry

I think there is a way to ignore, as irrelevant, derivations such as M1 and M2. First, let me point out that Mackie does not claim that the first premise in either of these arguments is anything more than something that might be used to "give the meaning of 'water' " in a way that is *consistent* with DR+. It seems odd then that she entertains the thought that they might nonetheless be counted as consequences or assertions of DR+, since typically something counts as a consequence or assertion of a theory if it is, well, a consequence or assertion of a theory and not merely something that is consistent with the theory. The oddity can be explained though on the assumption that the first premises of S1 and S2 are likewise ways of "giving the meaning" of water that are merely consistent with DR+. The assumption is understandable, but incorrect. The first premises of S1 and S2 are in fact genuine consequences of DR+. If this is right, then there is an obvious way to ignore M1 and M2 as irrelevant since their first premises are not genuine consequences of DR+.

To see that the first premises of S1 and S2 are indeed genuine consequences of DR+ about "water," it is helpful to think about why the first premise of S0 is a consequence of DR+ about "Woody." In fact, it is helpful to think about the generalized version of that premise, which I will call "IS-1" (for *individual schema 1*).

(IS-1) It is necessarily the case that: $\alpha = dthat(\beta)$.

Notice that there is a sense in which (IS-1) "says" that α is a rigid designator of whatever β designates. More accurately, (IS-1) expresses a truth just in case α is a rigid designator of whatever β designates. Here is why. (IS-1) is true just in case α and $\ulcorner dthat(\beta) \urcorner$ have the same intension. And this is the case if and only if with respect to every possible world the extension of α is the extension of $\ulcorner dthat(\beta) \urcorner$. $\ulcorner dthat(\beta) \urcorner$ designates the same thing with respect to every possible world, namely whatever is designated by β with respect to the actual world. So (IS-1) is true just in case α designates that thing with respect to every possible world, which is to say that (IS-1) is true just in case α rigidly designates whatever is designated by β. And thus, since DR+ about α is committed to the rigidity of α, it is committed to every instance of (IS-1) in which (it is philosophically uncontroversial that) α and β are codesignative.[32]

32. There is a slight complication because (IS-1) "says" not merely that α is a rigid designator but that it is an *obstinate* rigid designator (that is, a designator that designates the same thing with respect to all possible worlds). It is consistent with DR+ about that is merely a *persistent* rigid designator (that is, a designator that designates the same thing with respect to all possible worlds in which it exists and designates nothing otherwise). Thus (IS-1) slightly overstates what DR+ is committed to. None of this affects the main point.

Now consider (KS-1) (for *kind schema 1*).

(KS-1) It is necessarily the case that: something is a (bit of) ν if and only if it is an instance of *dthat*(μ).

Just as the advocate of DR+ about α is committed to every instance of (IS-1) in which α and β designate the same individual, the advocate of DR+ about ν is, by virtue of her commitment to the rigidity of ν, committed to every instance of (KS-1) in which (it is philosophically uncontroversial that) ν and μ designate the same kind.[33]

So, since the first premises of the attempted derivations that Salmon considers are consequences of DR+ whereas the first premises of the attempted derivations that Mackie offers are not consequences of DR+, we have a principled and utterly natural way to "ignore, as irrelevant, purported 'Derivations' such as M1 and M2" (p. 187). And thus, we see that Mackie's worry that DR+ has substantive essentialist import is unfounded.[34]

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33. The reason for the commitment is slightly more complicated in the case of (KS-1) than in the case of (IS-1). I hope to say more about this elsewhere.

34. I thank Graeme Forbes, Penelope Mackie, and especially Nathan Salmon for their comments on earlier versions of this paper. I am also grateful to audiences in the following venues for their responses to earlier versions of this material: the Central Division Meeting of the American Philosophical Association, February 2009; the Federal University of Rio de Janeiro; and the Lisbon-Curitiba Philosophy Colloquium in Curitiba, Brazil.