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## **A Dilemma about Kinds and Kind Terms<sup>1</sup>**

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### **1. Introduction to the Dilemma**

It is uncontentious that some noun phrases denote kinds, like the subject-term in the following:

(0) The kind Tiger is an abstract object.

Regardless of whether (0) is true, clearly its initial NP denotes a kind.<sup>2</sup>

However, it is often thought that many *generic* NPs denote kinds as well. In the literature, the following have been offered as examples:<sup>3</sup>

(1) The tiger is striped.

(2) That kind of predatory cat is striped.

(3) Water is a colorless, odorless liquid.

(4) Dinosaurs are extinct.

To be sure, other generics are used in expressing universal and existential quantification, as in the following:

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<sup>2</sup> It may be that (0) is only part of a philosophical dialect of English, rather than a proper sentence of English *per se*. Regardless, the point holds that its initial NP clearly denotes a kind.

<sup>3</sup> A classic introduction to this literature is Carlson & Pelletier (1995).

(5) Greenland sharks are vertebrates.

(6) The Greenland shark has lived up to 400 years.

And there are still other generics, which seem to quantify over *most*, or *normal*, or *statistically average* members of the kind:

(7) Tigers are striped.

(8) Chairs have four legs.

(9) A sofa is a broad, overstuffed armchair.

The usual view is that sentences like (7)-(9) have an implicit *Gen* operator binding the variables in ‘Tiger(*x*)’, ‘Chair(*x*)’, etc. (understood as an ‘adverb of quantification’ in the sense of Lewis 1975.)<sup>4</sup> Very briefly, (9) for instance is said to be true because a contextually restricted subset of individuals that satisfy ‘Tiger(*x*)’ also satisfy ‘Striped(*x*)’.<sup>5</sup>

Regardless, the main concern will be with the allegedly kind-denoting generics like in (1)-(4). And even here, I am somewhat concessive: For the linguist’s *overall* purposes, I am agnostic whether such generics are best seen as denoting a kind. A variety of nuanced considerations (morphological, syntactic, psycholinguistic, etc.) may make the overall

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<sup>4</sup> Liebesman (2011) has argued that sentences like (7)-(9) refer to kinds as well. But for a compelling rejoinder, see Leslie (2015). The *reductio* I present below resembles some of Leslie’s considerations, yet her remarks are just targeting Liebesman’s kind-denoting analysis of characterizing generics. In contrast, my *reductio* problematizes the kind-denoting analysis for almost *any* generic NP. It animates the question: Apart from cases like (0), how is it possible on *anyone*’s view for *any* generic NP to denote a kind?

<sup>5</sup> Leslie (2007, 2008) argues that the *Gen* operator should be seen as cognitively primitive (unanalyzable), owing to some of the difficult cases discussed here. Unfortunately, I cannot delve into Leslie’s view here, though I would argue that she offers a *psychological* solution to a specific group of problems—whereas our problems require a *semantic* solution. Also, for a useful critical discussion of Leslie, see Sterken (2015).

advantages of the view outweigh the disadvantages. But—strictly within the *theory of reference*, the view that certain generics are kind-denoting can seem unworkable.<sup>6</sup> Consider:

(P) The potato was cultivated in Ireland by the end of the 17<sup>th</sup> century. [Given]

(KD) ‘The potato’ in (P) denotes a kind. [Premise]

(v) A kind is an abstract object. [Premise]

(?) So, an abstract object was cultivated in Ireland by the end of the 17<sup>th</sup> century.

[From the preceding]

The conclusion looks absurd, assuming an abstractum cannot be grown as a crop. So those of us who endorse (KD) have some accounting to do.<sup>7</sup>

Call the argument above ‘the *reductio*.’ Premise (v) is contestable as it stands, but it will end up being somewhat variable, and shall be adjusted to different views of kinds. See section 4. Whereas, premise (KD) is based on the observation that (P) seems more like (1)-(4) than any of (5)-(9). After all, (P) is a not truth about all potatoes, most potatoes, normal potatoes, statistically average potatoes, etc. And it seems not to be an ordinary existential claim, considering the oddity of the anaphora in:

(P↓) \*The potato was cultivated in Ireland by the end of the 17<sup>th</sup> century, but soon after it was eaten by Murphy.

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<sup>6</sup> I use ‘reference’ and ‘denotation’ interchangeably; ditto with their cognates. The exception is in section 5, where an imagined objector proposes a distinction between them. But until then, the reader may regard them as equivalent.

<sup>7</sup> Moltmann (2013, p. 13) seems to note this kind of issue in passing: ‘Obviously...it is not the kind as such that is said to have a mane or to live in Africa’. But the problem seems dismissed in this remark, since nothing further is said. Yet unlike many linguists, Moltmann accepts that many so-called kind-denoting generics do not denote kinds. (Though she still thinks that a kind is denoted by a definite NP on its generic use, e.g., ‘The Siberian tiger’.)

It thus appears that ‘The potato’ in this use is not co-referring with ‘Some (/unique) potato’.<sup>8</sup>

Accordingly, many of us want to say that it refers to a kind. But this is where the *reductio* is applicable.<sup>9</sup>

In fact, the *reductio* may be avoidable with examples (1)-(4). These arguably have extensionally adequate paraphrases, wherein the initial NPs are not kind-denoting. E.g., it looks adequate enough, extensionally, to paraphrase (4) as ‘ $\forall x[\text{Dinosaur}(x) \supset \text{Dead}(x)]$ ’. Also, one can paraphrase (1)-(3) in the manner of (6)-(8), using the *Gen* operator.<sup>10</sup> That is true even for (2), even though its initial NP is explicitly formulated in terms of “That kind...” After all, one might see the NP there as elliptical for “[Generic members of] That kind...”, thus allowing a paraphrase using the *Gen* operator.

To be sure, these would not be the standard analyses of (1)-(4), and I think that the anaphor test illustrated at (P↓) would create difficulties for them.<sup>11</sup> But no matter. I wish to leave

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<sup>8</sup> One reviewer observes (P↓) would be acceptable in some contexts. But in those contexts, I doubt that ‘The potato’ co-refers with ‘The potato’ as it is used in (P). And it is the referent in *that* usage which concerns me.

<sup>9</sup> N.B., the issue in the *reductio* is not that of conflating the distributive vs. collective reading of a plural NP. Carlson & Pelletier (1995, p. 80) illustrate the latter in ‘The rabbit has a weight of more than one million tons’. After all, whereas the collective of rabbits has a weight, it is unclear whether the kind *per se* has a weight (especially if it is an abstractum). Perhaps it does if the kind just is the collective (and we will consider such a view at the end of section 4). But I wish to stress that the *reductio* bears on a much wider range of views, especially given the variability in (v).

<sup>10</sup> Although he was writing before Lewis (1975), this also seems to be how Sellars (1963) proposes to settle the issue; see his discussion of ‘The lion is tawny’.

<sup>11</sup> There is other well-known evidence suggesting that, e.g., ‘The tiger’ in (1) is not simply quantifying over individuals. E.g., ‘tigers’ patently denotes a plurality of individuals, yet it does not intersubstitute with ‘The tiger’, as shown in: (i) Tigers resemble each other. (ii) \*The tiger resembles each other. Actually, I think this evidence is not conclusive, but as I say, I wish to leave aside examples (1)-(4) and focus on (P).

aside (1)-(4) and focus on (P) (though it will not be my only example; see section 3). For it is striking that in the case of (P), the *Gen* operator is patently out of place. Again, (P) is not a truth about most/normal/average instances of the kind. Plus, the subject-term seems to co-refer neither with ‘All potatoes’, nor with ‘Some (/unique) potato’ (see again the anaphor test). So the kind-denoting view is especially attractive here. Yet this forces us to contend with the *reductio*.

Indeed, there is a consensus that *some* generics denotes kinds, even if the example from (P) is not utterly uncontroversial.<sup>12</sup> But for convenience, I shall continue with the example, and consider how a defender of (KD) might escape the *reductio*. The main options here are ~~to~~:

- (I) ~~Rejeet~~reject the absurdity of (P),
- (II) ~~Resist~~resist premise (v), or
- (III) ~~Deny~~deny that (P) follows from the premises.

However, I shall argue that none of these options are satisfying.

Let me be clear: My overarching goal is *not* to suggest that (KD) is false. It may seem otherwise, since I spend the remainder of the paper supporting the *reductio*. But this ~~owes to~~ ~~the~~ is needed to counteract the *de facto* consensus (and the strong supporting evidence) in favor of the kind-denoting view. Regardless, the ultimate lesson is that we have a problem, one that has been little acknowledged. The quantificational analyses of ‘The potato’ in (P) seem quite unacceptable, yet the kind-denoting analysis incurs the *reductio*. So we are left with a dilemma in the theory of reference. The ~~overarching~~ lesson is thus really a “Socratic” one about the extent of our ignorance. Disappointing, I know, but worth recognizing.

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<sup>12</sup> Thus, the *Stanford Encyclopedia of Philosophy* informs us: “It is widely accepted that sentences like ‘dinosaurs are extinct’...are singular statements that predicate properties directly of kinds.” (Leslie & Lerner 2016).

## 2. Red Herrings

Before exploring options (I)-(III), I wish to put aside other responses to the *reductio* that are mostly distractions. First, even though the *term* ‘The potato’ in (P) is not extensionally equivalent to ‘Some (/unique) potato’, it still may be that the *sentence* (P) is equivalent to the following existential statement:

(P-) Some potato was cultivated in Ireland by the end of the 17<sup>th</sup> century.

And for many purposes, we may not mind shunning (P) in favor of the less puzzling (P-). Yet the *reductio* concerns the subject-term in (P), and it suggests that (KD) cannot be the right view of its denotation. The sense is, moreover, that ‘*The potato*’ in (P) *indeed denotes something*, yet our dilemma concerns what that might be.<sup>13</sup> So to ignore (P) in favor of (P-) is really just to ignore the particular issue at hand. Even so, perhaps we *should* ignore (P) in favor of (P-). But for practical purposes, this effectively surrenders (KD). For the question is whether it is at all possible to defend a claim like (KD) in the face of the *reductio*—especially given the shortcomings of the alternative, quantificational analyses.

Liebman’s (2011) view of generics might encourage a similar non-solution. Roughly, Liebman’s sort of view could suggest that (P) is equivalent to:

(P+) A part of the kind Potato was cultivated in Ireland by the end of the 17<sup>th</sup> century.

The idea, then, would be that (P) is true in virtue of a *part* of the kind, much like ‘the table is touching the wall’ can be true in virtue of a part of the table touching the wall. In this way, the kind *per se* can avoid being “cultivated” in Irish soil.

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<sup>13</sup> The felt equivalence between (P) and (P-) might prompt the idea that ‘The potato’ in (P) refers to a kind of *fictional* object, which acts as a “proxy,” so to speak, for some specific group of potatoes. Yet then, (P) would say *per impossibile* that a fictional object was cultivated in Ireland by a certain time.

Yet as with (P-), (P+) is an analysis of the *sentence* at (P), and not of the *subject-term* specifically. It is not obvious, moreover, what the analysis would suggest about the term. If anything, it would suggest that ‘The potato’ in (P) denotes some individual potato(es). And that is the sort of view which was already rejected in connection with (P↓).

These latest observations also allow me to answer a different concern from a reviewer, about the overall project of the paper. One might ask why my approach is *linguistic*, even though the basic issue seems to be metaphysical. At worst, I am hiding a well-known metaphysical problem in an unhelpful, linguistic guise.

The more familiar issue in metaphysics is that abstracta often seem to have the properties of concreta. For example, consider the following fact about the game of chess (assumed here to be an abstractum):

(C) Chess was played in Persia by the end of the 7<sup>th</sup> century.

The question is: How can an abstractum enter into spatio-temporal relationships, as indicated by (C)? Metaphysicians have responded in a variety of ways. (For helpful overviews, see chapter 2 of Cowling 2017, and section 3 of Rosen 2017.)

But the problem with (KD) is different, as seen by the fact that many answers to the metaphysical issue are red herrings as concerns (KD). The metaphysical question may very well be answered by accounts that parallel the quantificational and Leibesman-style accounts above. Thus, a metaphysician could conceivably explain (C) by the fact that:

(C-) Some instance of chess was played in Persia by the end of the 7<sup>th</sup> century.

(C+) A part of the kind Chess was played in Persia by the end of the 7<sup>th</sup> century.

Such explanations may have their drawbacks, but neither would be a *red herring*. Each proposal would be attempting to explain why the abstractum seems to have concrete properties, by the fact that some concrete instances/parts have the relevant properties.

However, if we try to parlay these into solutions to our (KD)-issue, we are indeed left with red herrings. Our starting question is “What does ‘Chess’ refer to in (C)?” (The question is especially acute, since ‘Chess’ in (C) is not being used to denote all/most/normal/average games of chess.) However: Neither (C-) nor (C+) addresses *that* question. In the first instance, they describe the truth-condition for *the sentence*. And if they suggest any answer as to what ‘chess’ denotes, they would suggest that they denote particular instances of chess. But that too can be problematized by the anaphora test:

(C↓) \*Chess was played in Persia by the end of the 7<sup>th</sup> century, and it ended in  
checkmate.

Here too, the awkwardness of the anaphoric reference suggests that the subject-term is not referring to some instance of chess.

Nevertheless, akin to my earlier concession, it may be desirable to represent the truth-condition of (C) by a less puzzling sentence such as (C-) or (C+). But, that is once again to forego the question I am asking—namely, what is the subject-term referring to? The term seems to refer, yet the present metaphysician dispenses with the question; she treats the term as unimportant to grasping the basic metaphysical situation. And while that may be entirely apt for her purposes, a linguist’s curiosity is not yet satiated. For the *reference of the term* is exactly



what she wants to understand. This is why I have framed the issue as a linguistic one—and why the issue is different than the more familiar metaphysical issue.<sup>14</sup>

### 3. First Solution: Embracing (?)

The first *bona fide* response to the *reductio* is to reject the absurdity of (?). This may initially provoke an “incredulous stare,” but there is precedent in the literature for this sort of thing. Thus, Liebesman (2011) considers the following:

(10) *Canis lupus familiaris* barks.

It seems evident that the subject-term denotes a kind, even though we might prefer to say that it is generic *members* of the kind which bark (i.e., typical dogs) rather than the kind itself.

Liebesman admits that the sentence is a bit “jarring” (p. 433) but nonetheless, he does not have the intuition that it is *false*. He rather confesses having no solid intuitions on its truth-value either way. Thus, it strikes him as a leap to label (10) as *absurd*.

Indeed, Liebesman supports the truth of (10), by appeal to an uncontroversial truth with an apparently co-referring subject-term:

(11) That kind of animal barks. [Uttered while demonstrating a dog.]

However, within the theory of reference at least, it is dubious whether NPs with ‘kind of’ are best seen as kind-denoting. It may be just as well to analyze (11) as elliptical in the following manner:

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<sup>14</sup> Since the dilemma is one just within the theory of reference, it is imprecise to call my protagonist a “linguist.” It may be better to call her an *extensional* semanticist (or perhaps a *logician*). Yet this misleadingly suggests that our dilemma has interest only to one particular sub-sub-discipline of linguistics (or a particular dead branch of mathematics). But really, the basic issue is quite broad in its appeal: Regarding the subject-term in (P) and in similar cases, *what in the world are we referring to?* Cf. section 5.

(11') [A generic member of] that kind of animal barks.

Leslie (2015) also casts additional doubt on Liebesman's face-value reading of sentences like (11) (pp. 44-45; see also pp. 32-33). We may capture the gist of her observations in noting the apparent propriety of (12) and the apparent impropriety of (13):

(12) That kind of thing is an individual. [Uttered while demonstrating a dog.]

(13) \*That kind of thing is a kind. [Uttered while demonstrating a dog.]

Some metaphysicians may hear nothing odd in (13), yet this may just reflect how kind-talk in metaphysics has been a bit incautious. Outside philosophy, I suspect that (13) hits the ear wrong.

Further evidence against the face-value reading of 'kind of' NPs is the fact that such NPs seem appropriate in identifying-statements about an *individual*, e.g.:

(14) Carnap is that kind of metaphysician, the self-effacing kind.

(15) Trump is the kind of man you love to hate.

Naturally, we might interpret (14) and (15) as expressing something that does not gloss the distinction between kinds and their members:

(14') Carnap is [a member of] that kind of metaphysician, the self-effacing kind.

(15') Trump is [a member of] the kind of man you love to hate.

But this just reinforces that in the surface grammar, NPs featuring 'kind of' seem not to express an unqualified reference to a kind.

In a similar vein, I would suggest that the "jarring" feature of Liebesman's (10) may be explained by an ambiguity between something appropriate and something less appropriate:

(10') [A generic member of] *canis lupus familiaris* barks.

(10+) \**Canis lupus familiaris*, the kind *per se*, barks.

Unfortunately for Liebesman, the less apt reading is where the NP is interpreted as a bare reference to a kind. (See also Leslie, *op. cit.*, for additional evidence on why the generic rendering of such sentences seems preferable.)

Thus, the evidence seems less than extraordinary for an extraordinary claim like (?). Nonetheless, an anonymous colleague has objected that *some* predicates for individuals must also apply to kinds. To say otherwise would be tantamount to a rejection of kinds altogether.

This requires the offense against (KD) to switch to defense, yet it eventually helps clarify the offensive strategy as well. On the defensive side, observe that there is no danger of “rejecting kinds altogether.” After all, kinds might be accepted as the denotation of our predicates—and besides, higher-level predicates might also be applied to them, as in (0), even if no individual-level predicates are so applied.

Regardless, the intuition persists that some predicates must be “shared” between individuals and kinds, owing to cases such as:

(16) *Panthera tigris* is a species that gives live birth.

Pre-theoretically, (16) is a truth of English. Moreover, a species seems like a kind of kind—and “giving live birth” seems predicated of the species. So perhaps predication to kinds should be conceded.

However, I suspect that the situation is rather like that in Quine’s (1960) example ‘Giorgione is so called because of his size.’ The example strikes English speakers as true, even though the surface grammar appears to conflate use and mention. Yet Quine resolves this by paraphrasing the sentence as “Giorgione is called ‘Giorgione’ because of his size.” Since the latter exhibits no use/mention confusion, we can then understand the former as expressing a truth, albeit in a shorthanded way.

In analogous fashion, I suspect (16) is true, despite the seeming conflation between a kind and some of its members. For plausibly, the sentence is used to express something like:

(16') *Panthera tigris* is a species [such] that [a generic adult female] gives live birth.

Naturally, this paraphrase of (16) should not be used as an argument *against* those with a different view of (16). It is merely suggesting a possibility. But it is a possibility with some merit, and it should at least forestall critics who think the only option here is to describe the kind directly as “giving live birth.”

But—more boldly—the observation also increases the pressure on (KD). It clarifies that (KD) apparently understands (P) as confusing a kind with some of its members. For if (KD) is true, then a predicate for individuals *is* being applied to a kind. Since this seems like a conflation, that is some reason to doubt (KD).

Our troubles, however, partly consist in the fact that *there is good reason* to regard (KD) as true. To repeat, the usual ways to interpret ‘The potato’ as denoting some individual(s) also appear inadequate: The subject-term is not equivalent to ‘Some (/unique) potato’, nor is it denoting all/most/normal/average potatoes. Thus, (KD) gains credibility as an account of what the term denotes. But the *reductio* makes that account problematic as well.

Some loose ends. One should not think that (16+) indicates a general recipe for escaping the *reductio*. It was presumed that the subject-term in (16) denotes a kind; even the analysis at (16+) respects that. The issue, rather, was whether the *predicate* in (16) is applied directly to the kind. (If it is, then that would independently support that (?) is not absurd.) However, we brought in (16+) to show that such kind-predication is not mandatory, and indeed, seems to involve a conflation. But this point about (16+) does not extend to (P) in a way that would allow us to dismiss the *reductio*.

True, (16) involves an apparent conflation, and the same sort of conflation seems to be in (P), if (KD) is accepted. But the thesis of the paper is *not* that (KD) is false. Again, part of my point is that the alternatives to (KD)—the quantificational analyses of ‘The potato’ in (P)—are inadequate too. If there is a lesson to the paper, it is merely a “Socratic” lesson about the extent of our ignorance. (However, one reviewer for *Synthese* has responded here with a novel interpretation of ‘The potato’, one which is neither kind-denoting, nor **strictly quantificational**quantifying over individual potatoes. See the appendix for more details.)

#### 4. Second Solution: Resisting ( $\nu$ )

The second solution to the *reductio* is to resist ( $\nu$ ), but let me first back off the claim a bit. Suppose that ‘abstract object’ in ( $\nu$ ) is really just a placeholder for whatever theory of kinds you prefer. Even so, my claim is that, when (?) is revised accordingly, it will remain absurd, no matter which favored descriptor replaces ‘abstract object’. For instance, consider a view where a kind is defined by a Lockean nominal essence. Then, the potato described in (P) would be a mere projection or ‘shadow of a predicate.’ But the potato is not so ontologically flimsy. It is a tuber, not a shadow of a predicate.

Similarly, it is a strain to say that an Armstrongian immanent universal was cultivated in Ireland by the end of the 17<sup>th</sup> century. (cf. Armstrong 1989). After all, an immanent universal exists in several places at once—it wholly exists wherever an instance exists.<sup>15</sup> But the thing

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<sup>15</sup> Note that an Armstrongian immanent universal is *not* just a scattered object. The latter merely has different *parts* at different places. An Armstrongian universal is much weirder—the *whole* occupies multiple places at once!

cultivated in Ireland was not so metaphysically exotic. What was grown in Irish soil was an ordinary vegetable, occupying one place at a time.<sup>16</sup>

More generally, once we care to separate predicates for individuals vs. kinds, it is inevitable that *what describes a kind is not what describes the potato*. This leads to a more general argument suggesting that *no* theory of kinds will elude the *reductio*, once we recognize other cases besides (P) which force the issue. Consider for instance:

(17) Liquor induces cirrhosis.

(18) The lion has a mane.

(19) Steel was cheaply manufactured by the beginning of the 20<sup>th</sup> century.

As in (P), the initial NPs here do not seem quantificational in the standard or generic ways. E.g., it is false that all/most/normal/average lions have a mane, given that juveniles and adult females are lacking. More, we would not see (18) as stating merely that at least one lion has a mane. After all, if *only* one had a mane (and it was due to random mutation, let's suppose), then (18) would naturally be read as false. (The anaphora test, illustrated with (P↓), can be used here as well to provide further confirmation.)

Observe, then, that to escape the *reductio*, what describes a kind must describe liquor, the lion, steel, and the potato [assuming the preceding NPs denote kinds]. After all, what is true of kinds in general ought to be true of these kinds in particular. But what is said of kinds in general will not be said of liquor, *and* the lion, *and* steel, *and* the potato. Granted, some descriptors correctly apply to all of these, e.g., none are fish, each has less mass than the sun, each is found

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<sup>16</sup> An unregenerate Armstrongian might reply that if we are truly talking about the *kind*, then we should insist that the thing existed at several places at once. But this is a view that tries to embrace the absurdity of (P), and we have already addressed that possibility in the previous section.

in Africa, etc. Yet when philosophers try to say what a “kind” is, they do not describe them as non-fish, as less massive than the sun, as found in Africa, etc. Rather, they describe them in ways that would only encourage the *reductio*. And the broader point is that the denotations of these NPs are wildly heterogeneous. That in turn suggests that (KD) will lead to absurdity, assuming your theory of kinds describes kinds homogeneously. And so, the *reductio* is apparently a *reductio* of (KD).

As a different tack, one can “resist (v)” just by refraining from judgment about what kinds are (rather than hold any specific views on the matter). This may reflect agnosticism or a principled quietism about the metaphysics of kinds. Either way, however, it is unclear why one would retain a predilection for (KD), absent any conception of kinds. In that case, the denotation of ‘The potato’ in (P) is merely a “black box.” This just reflects a refusal to engage the dilemma rather than any real success in resolving it.

Before moving on, one might consider the *reductio* in relation to two well-known conceptions of species, viz., the view that a species is a ‘historical individual’ (Ghiselin 1975; Hull 1976, 1978), and the view that a species is a set of organisms (Kitcher 1984, 1989). Could it be that ‘The potato’ in (P) denotes the potato-species, as understood by either view? In fact, the force of the *reductio* to the Kitcher-view should be clear. The set of all potatoes was not cultivated in Ireland by a particular time.

But what of the Ghiselin-Hull view? First—as one reviewer has emphasized to me, the Ghiselin-Hull view is not a view about kinds (not even biological kinds). Indeed, the view is precisely that a species is not a kind, but an *individual*. Regardless, if ‘The potato’ in (P) denotes a species *qua* historical individual, would this dismantle the *reductio*? It seems not. Consider that a species *qua* historical individual has all instances of the species as parts. So if ‘The potato’ in

(P) denotes a historical individual, it denotes a thing that has all individual potatoes (spread throughout time) as parts. And in that case, (P) would be saying that a rather extraordinary event had occurred in Ireland by the end of the 17<sup>th</sup> century—namely, the planting/harvesting of the mereological sum (or what have you) of all potatoes that will have ever existed.<sup>17</sup>

There is a further view of kinds worth considering. This is the view that a kind—or at least a *natural* kind—is a cluster of properties whose co-instantiation is regularly and stably found in nature (Millikan 1999; Boyd 1999).<sup>18</sup> Here, it sounds tenable at least to say that the lion, steel, etc., are each homeostatic property-clusters. However, this is an illusion, due to glossing the distinction between properties vs. their instances. It may well be that the lion is a cluster of property-*instances*, e.g., an instance of mammalhood, an instance of animalhood, etc. But a cluster of property-instances is at best an individual, not a kind. After all, a cluster of instances cannot be repeated or multiply instantiated.

It would be better to say that a kind is a cluster of properties as such. But then, the *reductio* returns. Each part of a property-cluster is a repeatable affair; each such property has multiple instances. However, the lion does not have body parts that are multiply instantiated. If it did, it would be a remarkable animal indeed. To be sure, the lion's parts are of various kinds

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<sup>17</sup> Here too, beware of the Liebemanian idea that a *part* of the kind Potato makes it true that “The potato” was cultivated in Ireland by such-and-such time. That may result in an equivalent sentence as (P), but the question at hand concerns the denotation of the initial NP in (P). See section 2.

<sup>18</sup> One reviewer objects that the Boyd-Millikan view is not that a kind is a cluster of homeostatic properties, but rather a *group of individuals* who instantiate the homeostatic property-cluster. I am quite ready to agree that this is the better exegesis of Boyd-Millikan. However, it is a view which fares worse against the *reductio*. It would be a view where (KD) implies, in connection with (P), that the group of all potatoes was cultivated in Ireland by such-and-such a time. In this respect, the view would suffer exactly the same fate as Kitcher's view.



which, in turn, have multiple instances. But that hardly means that the lion itself has (e.g.) a mane that is multiply instantiated. Its mane is an individual, not a kind (although it *belongs* to a kind, viz., the kind Lion's Mane); cf. our comparison of (12) and (13).

### 5. Third Solution: *Non-Sequitur*

Perhaps a better response to the *reductio* is to deny that (?) follows from what precedes it. There are, in fact, two ways to levy this charge. First, one might argue that there something like a false dichotomy here. It now appears that 'abstract objects' in (*v*) is shorthand for some long disjunction ('abstract objects, or nominal projections, or immanent universals, or...'), where each disjunct reflects a view of kinds. Accordingly, one might observe that the correct view of kinds might be a view that has not been devised yet. In light of that, either the disjunction will be open-ended, or it will just list all the *present* views. And in the latter case, the disjunctive list cannot be presumed to include the *right* view. (Whereas, if the open-ended disjunction is stipulated to contain whatever view is the right view, then presumably an absurdity will *not* result.) So it is dubious to conclude from (*v*) that an absurdity inevitably results from (KD).

Yet this charge of false dichotomy (or "false *n*-chotomy") essentially boils down to an agnostic/quietist stance. After all, if you indeed have a preferred view of kinds, then I invite you to replace 'abstract objects' in (*v*) with your favored description(s). The *reductio* then directly addresses your favored view only; it does not require some long disjunctive premise.

Alternatively, if you do not have a favored view, then I concur that there is no categorical reason to say that an absurdity results. Still, for a defender of (KD), that leaves mysterious how one avoids such absurdities.

As mentioned, there is a second version of the *non-sequitur* charge. This starts by assuming that the predicate in (v) consists only in your favored descriptor(s) for kinds. The objection then is to deny the inferential principle operative in that argument, roughly, that what is true of a kind as such is automatically true of specific kinds.

In clarifying matters, let us use ‘Cult( $X$ )’ to translate the entire predicate in (P). Then, this version of the non-sequitur charge could deny the following inference rule (where  $t$  is a term,  $K$  is a kind, ‘Denotes( $t, x$ )’ expresses the denotation-relation, and ‘ $\Phi$ ’ is replaced with your favorite theory of kinds):

$$(20) \forall t \forall K [(\ulcorner \text{Cult}(t) \urcorner \text{ is true} \ \& \ \text{Denotes}(t, K) \ \& \ \Phi(K)) \supset \exists X (\Phi(X) \ \& \ \text{Cult}(X))]$$

Thus, suppose that  $t$  is a kind-denoting term. Then, (20) says that if  $\ulcorner \text{Cult}(t) \urcorner$  is true, the kind denoted by  $t$  also satisfies your favorite theory of kinds. The current reply to the *reductio*, then, is to reject this.

However, the usual semantics for a classical language will vindicate (20), owing to the following disquotation principles. Where  $t$  is a term that denotes  $y$ :

$$(DQ1) \ulcorner \Psi(t) \urcorner \text{ is true iff } \Psi(y)$$

$$(DQ2) \ulcorner t \text{ denotes } x \urcorner \text{ is equivalent to } \ulcorner y = x \urcorner$$

If these are assumed, then (20) is equivalent to:

$$(21) \forall Y \forall K [(\text{Cult}(Y) \ \& \ Y = K \ \& \ \Phi(K)) \supset \exists X (\text{Cult}(X) \ \& \ \Phi(X))]$$

And the truth of (21) is logically trivial. The consequent is guaranteed from the antecedent, the indiscernability of identicals, and existential generalization.

As a result, if one wishes to reject (20), it is best to show that it is not equivalent to the logically trivial (21). This might be done by showing that the substitution of identicals fails regarding  $Y$  and  $K$ , on the grounds that ‘Cult( $X$ )’ and ‘ $\Phi(X)$ ’ are intensional, in the sense that

substitution of coreferring terms within these predicates fails to be valid.<sup>19</sup> Alternatively, one could argue that (DQ1) or (DQ2) is false.

I submit that the first option is undermotivated. If ‘Cult(*X*)’ is intensional, it would be a hitherto unrecognized case of intensionality—the predicate does not use a propositional attitude verb, a modal operator, quotation marks, or an idiom like ‘so called’. More broadly, there is no evidence that the object is somehow partly individuated by the term denoting it. Yet the proposal would ideally need some independent evidence of intensionality, on threat of being *ad hoc*.

Moreover, the intensionality of one’s favorite theory of kinds seems like a drawback, even if it is advantageous vis-à-vis the *reductio*. After all, if one’s theory of kinds is intensional, then to give a theory of *Panthera tigris* is *not* to give a theory of the kind Tiger (nor vice-versa). So oddly, if one decided upon the view that *Panthera tigris* is subsumed by the kind Mammal, it would not yet follow that the kind Tiger does so as well. I assume that this strange and complicating feature is best avoided, if possible.<sup>20</sup>

The second option strikes me as a better choice for the defender of (KD). I may be idiosyncratic in that the falsity of (DQ1) or (DQ2) strikes me as a real possibility, at least in relation to natural language. Regardless, one way of pursuing this tactic is not too eccentric. Consider that when deriving (21), we assumed that ‘denotes’ expresses a relation between a term and the *member(s)* of the extension of the term. Yet often in the semantics literature, ‘denotes’ instead expresses a relation between a term and the *extension itself*. Thus, on the latter usage,

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<sup>19</sup> Notice that one would need to defend the intensionality of *both* predicates here, for instantiating *either* variable in the antecedent of (21) allows one to derive its consequent, thanks to the conjunct ‘ $Y=K$ ’.

<sup>20</sup> I am not identifying kinds with properties. There *is* reason to say that properties are intensional, but that is less plausible with kinds. In biology at least, what is true of *Panthera tigris* seems ipso facto true of the kind Tiger.

‘gold’ as a kind-term does not denote gold, but rather the *set* containing gold. One could still say that the *referent* of ‘gold’ is gold; however, the *denotation* of ‘gold’ would be something else.<sup>21</sup>

It is reasonable, moreover, that (20) is false if ‘denotes’ is used to represent a relation between a term and a set. For (20) would then imply that gold is identical to a *set* rather than a metal. Thus, the defender of (KD) would seem justified in rejecting (20).<sup>22</sup>

So: The present defender of (KD) holds that the *reductio* is a *non-sequitur*, for it depends on a false inferential principle, viz., (20). And, in response to its putative equivalence to the logically trivial (21), the defender now rejects the equivalence by denying (DQ). And (DQ) plausibly *is* false if ‘denotes’ is construed as expressing a relation between terms and *sets*.<sup>23</sup>

However, if the defender reads ‘denotes’ in the proposed manner, then it seems she loses sight of the key issue. That issue, I take it, is: When we use the ‘The potato’ in (P), *what part of the world are we referring to?* In asserting (P), we are saying something true about *some* part of

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<sup>21</sup> One reviewer has offered a similar idea, where the denotation of ‘the potato’ is an abstractum, and where the truth-condition of (P) is still something like (P-). It would be a view where the “denotation” of the term is not part of the truth-condition of the sentence. (Perhaps, however, the abstractum would still be in some sense the “object” of the term.) However, my response to this proposal would be much the same—it seems to lose sight of the basic problem which has animated the paper. Namely, when we assert (P), we are saying something true about *some* part of reality. But which?

<sup>22</sup> If  $\{x \mid x \text{ is gold}\}$  is an “impure” set, this may not imply that gold is a set in any objectionable sense. In which case, the defender of (KD) may not yet have adequate warrant for rejecting (20). But out of generosity to the defender, let us pass over this issue.

<sup>23</sup> In response to all this, I might try to *stipulate* that in (20), ‘denotes’ expresses a relation between a term and the members of its extension (vs. the extension per se). The problem, however, is that ‘denotes’ in (KD) is the *defender’s* term, which she is free to define as she likes. Hence, if she construes ‘denotes’ in (KD) one way, and I read it the other way, then the issue threatens to be merely verbal.

reality, and we are using ‘The potato’ to single out the part of reality in question. But which part of reality is it? Apparently, a speaker would not be referring to any individual potato, nor would she be making a statement that is *in res* all potatoes, most potatoes, normal potatoes, etc. So what in the world is she referring to?

The present defender of (KD) seems to have left that question by the wayside. For her use of ‘denotes’ is not a relation between a worldly object and ‘The potato’. Rather, like all denoting-terms, she understands the semantics of ‘The potato’ in her quasi-technical way, where its semantics consists in a relation to a *set*, the one containing all potatoes. And from this, it is unclear how we get an adequate answer to *what in the world are we referring to?* After all, ‘The potato’ on her view “denotes” the set of *all* potatoes—yet we have stressed how (P) does not equally concern *all* tubers of that kind. Nor is it clear how one would restrict the extension by an adverb of quantification, for we have also emphasized that (P) is not *de* most/normal/average, etc., potatoes. So the defender seems to have simply left behind the question about reference.

## 6. Closing

‘The kind Potato’ denotes a kind, but it apparently does not co-refer with ‘The potato’ in (P). The potato is raised as a crop, but the former is not. Actually, if the point is put this baldly, it looks question-begging. The *reductio* is thus meant to introduce the idea in a more compelling way. But at bottom, the observation is just that co-reference apparently fails between ‘The kind Potato’ and the allegedly kind-denoting use of ‘The potato’ as it occurs, for example, in (P).

My aim in this paper has been negative only. It was to show that theory of reference is hard pressed to see, except in more esoteric cases like (0), how so-called “kind terms” denote

kinds—even though there are formidable reasons to think they indeed denote kinds. I myself remain flummoxed, and currently have no solution to offer.

### Appendix: A Proposal from Reviewer #3

The third reviewer for *Synthese* has suggested a novel sort of account for (P), one which denies (KD), and instead isolates select individuals as the referent of ‘The potato’. The reviewer’s proposal strikes me as worth exploring further, but in this appendix, I shall explain why I do not yet find it convincing.

The essential idea is to regard ‘The potato’ as denoting a specific plurality of potatoes, namely the plurality which was cultivated in Ireland by the end of the 17<sup>th</sup> century.<sup>24</sup> Accordingly, it is a view which rejects (KD)—but at the same time, it does not invoke the *Gen* operator, whereby ‘The potato’ in (P) would refer to most/normal/average potatoes. Nor is ‘the potato’ on this view designating all/some potatoes. Rather, it is designating one *potato-subgroup* (or potato-plurality if you prefer), where the relevant subgroup is indicated by context. So the view would be that:

(22) ‘The potato’ in (P) denotes the plurality of potatoes cultivated in Ireland by the end of the 17<sup>th</sup> century.

Now in consequence, the truth-condition of (P) would apparently be understood as:

(P3) The plurality of potatoes cultivated in Ireland by the end of the 17<sup>th</sup> century was cultivated in Ireland by the end of the 17<sup>th</sup> century.

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<sup>24</sup> At times, Reviewer #3 phrased this in terms of the *set* of potatoes cultivated in Ireland, etc., rather than a *plurality* of such potatoes. However, the talk about a “set” may raise hackles about cultivating an abstractum in Irish soil. Yet if we are talking about an *impure* set, perhaps there is no issue here. And ~~if one prefers~~ it does not matter to the issues above to speak of an impure set rather than a plurality, ~~be my guest~~.

This may seem to create redundancy where there is none. But I myself do not regard that as a drawback of the reviewer's proposal. After all, we are just concerned with an extensional semantics for (P), and "redundancy" in logical form is entirely possible. (Consider the "redundancy" in the Russellian analysis of 'The present kind of France is bald'.)

It is more problematic, I think, that (P3) will suggest that (P) holds *of necessity*. For (P3) expresses a necessary truth: The plurality of potatoes cultivated in Ireland by the end of the 17<sup>th</sup> century was cultivated in Ireland by the end of the 17<sup>th</sup> century.<sup>25</sup> However, (P) is not necessarily true. The potato was not necessarily cultivated in Ireland by the end of the 17<sup>th</sup> century. And so, while the reviewer's proposal shows ingenuity, I doubt it will ultimately prove fully satisfying.

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<sup>25</sup> Granted, the relevant potato-plurality does not necessarily exist. But this does not prevent some statements about the (actual world) plurality from being necessarily true. In this respect, the necessity of (P3) is analogous to the necessity of 'The current president of the U.S. is currently president of the U.S.'

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