

## ARTICLE

# Generics and the metaphysics of kinds

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**Abstract**

Recent years have seen renewed interest in the semantics of generics. And a relatively mainstream view in this work is that the semantics of generics must appeal to kinds. But what are kinds? Can we learn anything about their nature by looking at how semantic theories of generics appeal to them? In this article, we overview recent work on the semantics of generics and consider their consequences for our understanding of the metaphysics of kinds.

## 1 | INTRODUCTION

Here is a metaphysical question: what is the nature of kinds? Here is a semantic question: what do generic sentences mean? A natural thought is that these questions are related. After all, generic sentences allow us to express facts about kinds. As Nickel (2018, p. 1) puts it: "Much of our thought and talk is directed towards kinds, expressed with so-called generic sentences."

We won't directly answer either the metaphysical question or the semantic question. Rather, we'll tackle another question: what, if anything, can the semantics of generics teach us about the metaphysics of kinds?<sup>1</sup> As will become clear, the lessons one can draw about the metaphysics of kinds will depend on one's preferred semantics of generics; however, most views do allow us to draw some lessons.

## 2 | TWO KINDS OF GENERICS

The following sentences are generics:

(1) Bicycles have two wheels.

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- (2) Gold is shiny.
- (3) The lion has a mane.
- (4) Bicycles were invented in the 19<sup>th</sup> century.
- (5) Gold is a precious metal.
- (6) The lion has not been domesticated.

It is customary to divide this list into two classes: (1)-(3) are characterizing sentences and (4)-(6) are kind-predications. Intuitively, characterizing sentences express truths about members of a kind: individual bicycles have wheels; quantities of gold are shiny; particular lions have manes. Inserting an adverb of quantification like 'typically' into a characterizing sentence often does little to shift truth-conditions: (7) seems truth-conditionally close to (1) (cf. Krifka et al. 1995, p. 7).

- (7) Typically, bicycles have wheels.

The dominant view is that characterizing sentences (1)-(3) contain a tacit generic quantifier: Gen. Debates then center on the syntax, semantics, and linguistic status of Gen.<sup>2</sup>

(4)-(6), by contrast, are not analyzed as generalizations about members of a kind. The attempt to add an adverb of quantification misfires:

- (8) ?? Typically, bicycles were invented in the 19<sup>th</sup> century.

The reason we cannot append 'typically' to (4) is that it doesn't express a generalization about particular instances of bicycle-kind—individual bicycles—but, rather, a fact about the kind itself, that it—bicycle-kind—was invented in the 19<sup>th</sup> century. Similar remarks apply to (5) and (6). (5) expresses that a kind, or type, of metal—gold—is precious. (6) expresses that a kind, or species, of mammal—lions—has not been domesticated. The standard analysis of (4)-(6) is that they are kind-predications: the sentence-initial term refers to a kind, while the verb phrase ascribes a property to that kind. If that's right, then such sentences give us a direct window into the nature of kinds.

Our discussion will be structured around this distinction among generics. In §2 and §3, we'll discuss kind-predications. In §2 we'll discuss whether the initial impression that sentences like (4)-(6) are kind predications can be further justified. It is crucial to examine this initial impression if we are going to try and use such sentences to reach conclusions about the nature of kinds. We'll argue that the initial impression can be well-motivated and that such-sentences are properly analyzed as kind-predications.<sup>3</sup> Having established this, in §3 we'll consider the consequences for the metaphysics of kinds that follow from this semantic analysis. In §4 and §5, we'll turn to characterizing sentences like (1)-(3), which are standardly analyzed as genuine generalizations, and discuss what, if anything, they can teach us about the metaphysics of kinds. In §4 we discuss the relationship between characterizing sentences and kind-predications. If the two types of sentences are intimately related, that may yield conclusions about the nature of kinds. In §5, we consider views on which kind-predications and characterizing sentences are given very different analyses and show that some such views may still generate conclusions about the metaphysics of kinds.

### 3 | KIND-PREDICATIONS AND KIND REFERENCE

On the standard analysis of (4)-(6), they are analyzed as kind-predications—that is, the subject term is kind-referring and the predicate ascribes a property to that kind. Why think this? After all, as we'll see below, there are well-known reasons to think that other generic sentences, and indeed sentences with the same surface grammar (notably, sentences with bare plural subject terms), are quantificational.

In the literature, little is done to support the standard analysis beyond marshalling judgments about which properties non-kinds can have. For example, that particular bicycles aren't the sort of thing that can be invented in the 19th century, or that particular (individual) dinosaurs aren't the sort of thing that can go extinct. Given that (4) is true, and individual bicycles aren't invented in the 19<sup>th</sup> century, we cannot analyze (4) as quantifying over bicycles. Rather, we must analyze 'bicycles' in (4) as referring to something that can have the property of being invented in the 19<sup>th</sup> century, and the most natural candidate is bicycle-kind. This reasoning is fine as far as it goes, but we'll now give more developed arguments for the kind-predication analysis of (4)-(6).

The first argument proceeds by considering the consequences of adopting a quantificational analysis. Assume, for *reductio*, that the standard analysis is false and particular bicycles can have properties like *being invented in the 19<sup>th</sup> century*. Now consider Rachel's carbon-framed bike. By our assumption it has the property of being invented in the 19<sup>th</sup> century. However, in addition to being a bicycle, it is a carbon-framed bicycle. Carbon-framed bikes were invented in the 20th century. So, by parity of reasoning, it would seem to also have the property of *being invented in the 20<sup>th</sup> century*. It follows that Rachel's bike was invented in both the 19th and the 20th century, which seems impossible. The natural conclusion is that the property of *being invented in the 19<sup>th</sup> century* is not true of individuals. So, we must reject a quantificational analysis. Of course, this reasoning solely yields rejection of a quantificational analysis, it doesn't yet yield adoption of a kind-predication analysis. For that we need more arguments.

The second argument considers substitution behaviour.<sup>4</sup> If 'gold' in (5) refers to a kind, then replacing it with a clearly kind-denoting coreferential term should preserve truth. And this is exactly what we see. Consider the following variants of (5) ('Gold is a precious metal.')

- (9) That kind of metal is a precious metal. (Demonstrating a gold ingot.)
- (10) That is a precious metal. (Demonstrating the same ingot.)
- (11) Element 79 is a precious metal.

All of these sentences are true, and they are each the result of swapping 'gold' in (5) for a term that uncontroversially refers to a kind. ('That kind of metal' in (9) is a more controversial case, but one can feel free to set it aside.<sup>5</sup>) So, one may argue that (i) the subject terms of (9)-(11) should be analyzed as kind-referring, (ii) If (i), then 'gold' in (5) should be analyzed as kind-referring, (iii) therefore, 'gold' in (5) should be analyzed as kind-referring.

The third argument begins with the premise that the subject terms of (4)-(6) are referential and argues that kinds are the best candidate referents. What alternatives are there to kind-reference? One may hold that 'bicycles' in (4) refers to a set, a fusion, or a plurality. These strategies, however, have problems when we realize that we can truly ascribe a property to a kind at a world in which that kind is memberless.<sup>6</sup>

Imagine, for instance, that a bicycle company is about to launch a new model called the Pavement Chewer in an attempt to corner the middle-aged cyclist market. In the same launch, they're also going to release a tricycle, called the Pavement Nibbler to capture the preschool market. However, they have yet to produce anything--no bicycles, nor tricycles. Now consider:

- (12) Pavement Chewers were invented to appeal to middle-aged cyclists.
- (13) Pavement Nibblers were invented to appeal to middle-aged cyclists

(12) is true while (13) is false. This is hard to explain if their subject terms refer to sets, sums, or pluralities. For instance, if we analyze the subject terms of (12) and (13) as set-referring, then, given that there are no actual Pavement Chewers or Nibblers, the two subject terms should be coreferential, which they are not, and also (and intimately relatedly) the two sentences should have the same truth value, which they don't. The argument straightforwardly generalizes, *mutatis mutandis*, for the mereological view and the plural reference view: for the former both should refer to the empty fusion (if there is one), for the latter both should fail to refer.

If the quantificational view is no good, and the set/fusion/plurality view is no good, is there anything left besides the standard view? Could 'bicycles' denote a property? Again, a substitution argument makes this difficult. The property view falsely predicts the equivalence of the following four sentences:

- (14) Dinosaurs are extinct.
- (15) The property of being a dinosaur is extinct.
- (16) Being a dinosaur is extinct.
- (17) To be a dinosaur is extinct.

But this is the wrong prediction: (14) is true while the rest are false. So it seems like the property view is no good either.

None of this is conclusive. For instance, one may hold onto a set view but argue that the relevant sets include possibilia, so 'Pavement Chewers' in (12) refers to the set of all actual and possible Pavement Chewers. Similar modifications are possible for mereological and plural views. However, one could reasonably worry that there is little difference between endorsing a kind-reference view and endorsing a set-reference view on which the sets include possibilia. This leads us to a foundational question: how, ultimately, are we to distinguish the kind-reference views from its competitors and, more generally, how does the notion of a kind operative in our discussion of (4)-(6) relate to independent discussions of kinds in, for example, philosophy of biology?

Thus far, we've assumed that kinds are an independently established ontological class and invoked that class in our analysis of (4)-(6). Adopting this assumption, the project of using generics to discover the nature of kinds is one of attempted *discovery*: we begin with an independent class of kinds and then we aim to discover further instances of kind-reference, thereby learning more about the nature of kinds. However, there's another way that somebody could think of kind-reference in generics like (4)-(6): they could take it to be a matter of *stipulation* rather than discovery. In particular, they could stipulate that by 'kind' they mean whatever is referred to by the subject terms of sentences like (4)-(6). Reading the semantics literature one may get the impression that this is how theorists think of kind-reference (though we are not aware of anybody who makes this explicit). Even if one thinks about kind-reference in this stipulative manner, the project of discerning the metaphysics of kinds so-construed is not uninteresting. For instance, we can still ask whether kinds are reducible to entities of other categories. However, the stipulative method disconnects kind-reference in generics from other uses of kinds in science and metaphysics, so it may rob the project of some interest. In this discussion we'll adopt the spirit of discovery, though much of what we say will be compatible with the stipulative spirit. Adjudicating between these approaches requires careful thought about the relationship between science and semantics, and we leave that task for another day.

## 4 | KIND-REFERRING GENERICS AND THE METAPHYSICS OF KINDS

Granting that generics like (4)-(6) contain subject terms that are kind-referring, we can now turn to our central question: what can they teach us about the metaphysics of kinds? The first lesson pertains to the existence of kinds. On our analysis, kind-predicational generics like (4)-(6) contain kind-referential subject terms. It follows that for every true such generic, there exists a kind. If we assume that subjects that cannot be intersubstituted *salva veritate* designate distinct kinds, then many generics will commit us to distinct kinds. Given the diverse range of true kind-predicational generics—they can be formulated with a wide range of plurals, mass nouns, definite and indefinite descriptions—this leads us to endorse a plenitude of kinds. Here is one principle that supports such a plenitude (when conjoined with our aforementioned assumptions).

**Plenitude:** for every true kind-predicational generic of the form 'k P', there exists a kind k, which is the referent of the occurrence of 'k' in that generic.

We've already discussed a diverse range of predications that give rise to true kind-predicational generics. Here are some more examples.

- (18) Pandas are facing extinction.
- (19) Social media was invented in the 90s.
- (20) Saffron is a valuable spice.
- (21) Super Tuscans are a sought-after wine.

**Plenitude**, along with the supposition that (18)-(21) are true, commits us to the existence of both natural kinds (pandas and saffron), as well as non-natural kinds (social media and Super Tuscans). Just how many kinds does **Plenitude** commit us to? That depends on how many true kind-predicating generics there are, and how many of their subject terms are non-intersubstitutable *salva veritate*. Glancing at the literature, one can get the misimpression that relatively few predicates force kind-predicating readings. Most focus on such obvious examples as 'extinct'. In fact, almost any mass or count noun can serve as a predicate that forces a kind-predicating reading. To see this, focus on (20) and (21). They each contain predicates that can apply to individuals (non-kinds): 'valuable spice' and 'sought-after wine'. However, in these sentences those predicates have another reading, which we can gloss as *kind of spice* and *kind of wine*, respectively. The fact that mass and count nouns have *kind-of* interpretations is independently well-established.<sup>7</sup> For our purposes, the important corollary is that *kind-of* interpretations can be used to force kind-predicating readings of generics. For instance, if 'grape' is read as *kind of grape* in (22), we can conclude that 'Merlot' refers to a kind, and by **Plenitude**, that the kind Merlot exists.

- (22) Merlot is a grape.

'Merlot', of course, is hardly a special case. For almost any arbitrary plural or mass noun, it seems as if we leverage *kind-of* readings of predicates to generate true kind-predications that, by **Plenitude**, commit us to the existence of the kind.

Of course, there are many potential objections to **Plenitude**. Two, in particular, stand out. The first objection is that **Plenitude** is not restricted to lexically simple plurals/mass nouns, and, with a little lexical complexity, it seems that we could use it to generate a version of Russell's paradox (consider 'Non self-membered sets are not a kind of set'). Plausibly, then, it will have to be restricted in some manner. The second objection is that **Plenitude** was motivated by just a few cases but it remains to be seen whether all such true kind-predicational generics place this metaphysical demand on the world. Consider sentences like (23) and (24):

- (23) Phlogiston was hypothesized to be a product of combustion.
- (24) Phlogiston doesn't exist.

These sentences are true but many theorists would want to say that there is no such kind. (This isn't uncontroversial: one could hold that there is such a kind but it is uninstantiated, even necessarily.) Notice that this is analogous to the problem of true negative existentials for proper names. While that problem is not easily solved (to put it mildly), it is also not usually taken to undermine any principle linking truth with reference and existence. More generally, **Plenitude** is only as plausible as a similar principle linking the truth of atomic (simple subject/predicate) sentences to existence: that for every true atomic sentence of the form 'x is P', there exists an object that is the referent of 'x'. A skeptic will take this principle to be false. The skeptic's reasons vary, but one familiar thought is that names for fictional entities give rise to counterexamples, so, for instance 'Sherlock Holmes is a detective' is true, though 'Sherlock Holmes' is non-referential. Reactions to this skepticism are varied. Many hold that 'Sherlock Holmes' is, in fact, referential in which case the skepticism fails. Others hold that such sentences are only true when prefixed with implicit 'according to the fiction' operators. Similarly, negative existentials like (24) may be taken to

express some more complex proposition, for example that the kind Phlogiston is actually memberless (cf. Kripke 2013, lecture IV). On these views, **Plenitude** may withstand the challenge. Stepping back, it is clear that **Plenitude** depends on some assumptions about the relationship between truth, reference, and existence. While these assumptions are usually taken to be uncontroversial at least in some weakened form, those who wish to sever the language/world link may reject them.

Our objectors were concerned that **Plenitude** links our ontology too closely to our language. This same thought may actually lead one to the conclusion that **Plenitude** is overly conservative. **Plenitude** ties our metaphysical conclusions about kinds to our actual expressive resources. To be sure, it merely provides a sufficient condition for kind-existence, not a necessary condition. However, one may think that we can move beyond our actual linguistic resources and provide a less parochial sufficient condition. After all, what seems to matter is not that our actual language contains some term that must be interpreted as kind-referential but, rather, that we could easily enrich our language in such a way that would force us to recognize a term as kind-referential. Taking 'possible true kind-predicational generic' to range over kind-predicational generics that could be introduced into our natural languages holding non-linguistic facts fixed, it may seem that **Plenitude+** is at least as well-motivated as **Plenitude**.

**Plenitude+**: for every possible true kind-predicational generic of the form 'k P', there exists a kind k, which is the referent of the occurrence of 'k' in that generic.

If examining kind-predications yields the conclusion that kinds are plenitudinous, there's a worry that the metaphysics of kinds revealed by generics will conflict with more sparse theories of kinds advanced by metaphysicians and philosophers of science. Of course, this depends on the assumption that the kinds we're theorizing about are the same invoked by metaphysicians and philosophers of science—the spirit of discovery we mentioned earlier. Even setting that aside, though, a plenitudinous ontology of kinds is compatible with making substantive distinctions among them, that is, that only some are natural or fundamental, and, indeed that only some are useful for the purposes of scientific or metaphysical theorizing.

We've been focussing on the claim that the most plausible semantic analyses of (4)-(6), along with some uncontroversial claims about which generics are true, should lead us to believe in a plenitude of kinds. Interestingly, there's another thread in the generics literature that may be thought to lead us in the opposite direction: towards a more conservative view of which kinds exist. That thread departs from the observation that some, especially complex, plural subjects can sound odd when we try to use them to formulate generics (whether kind-predicating or characterizing).<sup>8</sup> Consider the following pairs:

- (25) Coke bottles have narrow necks.
- (26) ?? Green bottles have narrow necks.
- (27) Dinosaurs are extinct.
- (28) ?? Dinosaurs with hairy toes are extinct.

Many judge (26) and (28) to be unacceptable, or at least odd, when uttered out of the blue. One possible source of oddity is simply that there is no kind to provide the referent for 'green bottles' or 'dinosaurs with hairy toes'. If that's correct, then this contrast may support a weakening of our plenitude principles. It may also support the claim that there is just no kind corresponding to 'green bottles'.

This reasoning is unconvincing. It requires the claim that the oddity of (26) and (28) is explained by the fact that there are no such kinds. However, a better explanation of their oddity is pragmatic: it is not that there are no such kinds, it is just odd to refer to them out-of-the-blue. This type of explanation is supported by the fact that with just a little contextual supplementation we can generate readings of (26) and (28) which are not odd.<sup>9</sup> Imagine that all green bottles have a uniform shape, and that this is common knowledge. Presto: (26) is no longer odd. Imagine that a bizarre paleontologist insists that hairy-toed dinosaurs resisted extinction. (28) is no longer odd.

None of this is to say that the contrasts between (25) and (26), and (27) and (28), are uninteresting. Discerning just what specific pragmatic explanation best accounts for the data may give us significant insight into the semantics and pragmatics of generics, as well as bare plurals/mass nouns more generally. However, there is no good reason to think that the contrasts can tell us anything about the metaphysics of kinds.

Thus far in this section we've been focussing on the mere existence of kinds. Kind-predicating generics, however, can teach us more about the metaphysics of kinds than their mere existence. Consider the following principle:

**Kind-property:** if there is a true sentence of the form 'k P' and 'k' is kind-referential, then we can conclude that there is a kind that possesses the property ascribed by the occurrence 'P' in 'k P'.

**Kind-property**, in abstraction, is uncontroversial. What's more controversial is claiming that it applies in particular cases. The kind-predicating analysis of generics like (4)-(6) provides us with a wide variety of cases in which **Kind-property** is applicable. We can use such generics to discover the properties of kinds, in addition to their mere existence.<sup>10</sup>

Just how much this can teach us will depend on the range of true kind-predicating generics. Much of the metaphysical fruit will, in turn, be driven by analyses of particular sentences. We won't brave such specific analyses here, but there is potential for discovering the specific properties of kinds by focussing on the semantics of kind-predicational generics.

## 5 | CHARACTERIZING GENERICS AND THEIR RELATIONSHIP TO KIND-PREDICATIONS

What about characterising generics like (1)-(3)? Is there potential to discover facts about the metaphysics of kinds by focusing on the semantics of characterising generics? The answer to this question will depend on the fraught question of what their semantics is. We'll postpone discussion of the more complex aspects of the semantics of characterising generics until the next section, as there are some potential shortcuts to interesting metaphysical conclusions to consider first. More specifically, if there is a close relationship between characterising generics and kind-predications, then we might learn about the metaphysics of kinds by consideration of the related kind-predication. In this section, we'll consider two such relationships and outline their metaphysical upshots.

According to some views,<sup>11</sup> characterising generics *just are* kind-predicating generics. So that, for example, the subject terms in (1)-(3) refer to kinds, and the corresponding predicates ascribe properties to those kinds. Such a view might initially sound implausible given how we distinguished the two types of generics in our introduction, however, there are some compelling arguments in favour of treating characterising generics as kind-predications.<sup>12</sup> We won't rehearse these here, as our more immediate goal is to articulate what metaphysical conclusions can be had, supposing such a view is correct.

The first thing to notice, if characterising generics just are kind-predications, is that there is an even more abundant and varied class of kind-predications than we considered in §3. One way to put this is that **Kind-property** is much less restricted than one may have initially thought. Since the class of predicates that can appear in true characterising generics is more diverse, the types and nature of the properties that kinds can possess is likewise more diverse.<sup>13</sup> This is true no matter whether one understands the contribution of the predicates in characterising generics—for example, the predicates in (1)-(3) – as ambiguous or not—that is, as expressing distinct properties from that of ordinary individual predications (e.g., as in 'my bicycle has two wheels', 'this golden nugget is shiny' and 'Simba has a mane'). If characterising generics are kind-predications and the predicates in question are ambiguous, then kinds possess kind-level properties that are distinct from individual-level properties. So that, for example, *having two wheels* is a property of bicycle-kind which is distinct from the individual-level property *having two wheels*.

Whereas, if characterising generics are kind-predications and the predicates in question are unambiguous, then kinds can possess the same properties as individuals, or even possible individuals. If (1)-(3) are true kind-predications, then the bicycle-kind has the property of having two wheels, the kind gold is shiny and the kind lion has a mane, which are all properties that can be truly ascribed to individuals.

It was already noted above that there is a plenitude of properties that straightforwardly apply to kinds on the basis of kind-predications like (4)-(6) and the *kind-of* locution: at least one for every (possible) plural/mass noun. But how much more abundant is the class of kind-predicating properties given an unrestricted understanding of which generics are kind-predicating? All properties for which there are true generics. This is plausibly not all properties (for which there are possible predicates) since some predicates that denote properties possessed by individuals do not give rise to generic readings. This is the subject-matter of small literature in linguistics, which explains the distribution facts in terms of the *individual-level/stage-level* predicate distinction. Very roughly, individual-level predicates express properties of an individual that are more permanent or stable (e.g., 'knows French'), whereas stage-level predicates express properties of an individual that are more transient or episodic (e.g., 'spoke French in the hallway'); and as the slogan goes: individual-level predicates give rise to generic interpretations.<sup>14</sup> This would suggest that the class of individual-level properties and kind-selecting properties circumscribe the class of properties possessable by kinds. However, predicates that give rise to characterising generic readings and those that do not, do not split so neatly into these categories. Some apparently stage-level predicates give rise to characterising generic interpretations—consider, for example:

(29) Boxers sweat a lot.

(30) Toddlers tire quickly.

Thus, though one might initially think that properties, like sweating a lot or tiring quickly, do not count as possessable by kinds, it is arguably the case that consideration of true generics like (27)-(28) indicate otherwise.<sup>15</sup>

Though intriguing, the metaphysical conclusions discussed so far, are conditional on what many theorists see as an implausible view of the semantics of characterising sentences,<sup>16</sup> and hence, an implausible view of the relationship between characterising generics and kind-predications. It would be useful, then, if there were a relationship between characterising generics and kind-predications that is more neutral vis-à-vis the semantics of characterising sentences, and in particular, one that is consistent with a quantificational semantics. To this end, we introduce the following useful correspondence between true characterising generics and true kind-predications:

**Correspondence:** For every true characterising generic of the form 'k P', there corresponds a true kind-predication of the form 'this kind of K P' where K is a super-kind of k.

Consider the principle instantiated with our examples of characterising sentences (1)-(3):

(31) *Bicycles have wheels* corresponds to *this kind of vehicle has wheels*.

(32) *Gold is shiny* corresponds to *this kind of metal is shiny*.

(33) *The lion has a mane* corresponds to *this kind of mammal has a mane*.

Upon consideration of just these few examples, it's not hard to see that **Correspondence** applies generally.<sup>17</sup> However, there are some issues one might have with the principle. Firstly, there are issues with how the principle is formulated. As noted above, it may not be semantically plausible to think of 'this kind of K' sentences as kind-predicating: they may simply be characterising generics (or quantified sentences) themselves.<sup>18</sup> This issue might be countered with the observation that there are also corresponding sentences involving bare demonstratives or taxonomic uses<sup>19</sup> (e.g., as in 'The World Wildlife Organization decided to protect a (certain) large cat, namely the Siberian tiger' or 'These Spaniels make great pets'), which are plausibly read as straightforwardly kind-referring. We



could formulate **Correspondence** in terms of such sentences instead, though this may limit its generality. Second, it is unclear how generally **Correspondence** applies. The generality of the principle seems limited by the taxonomic relations it presupposes. What's more, Prasada, Hennefeld and Otap (2012) provide evidence that subjects are not inclined to accept claims like 'red flowers are a (single) kind of flower', which puts pressure on the idea that the characterising generic 'red flowers are pollinated by moths' corresponds to 'this kind of flower is pollinated by moths'. One way to respond is to notice, in the spirit of stipulation, that 'red flowers are a kind of coloured flower' sounds perfectly fine, so that 'red flowers are pollinated by moths' simply corresponds to 'this kind of coloured flower is pollinated by moths'. It's also worth noting, given our discussion of **Plenitude+**, that arguably we could enrich our language with the needed terms 'k' and 'K' in a way that would force us to recognize them as referring to red flower-kind and coloured flower-kind. Thus, preserving the generality of **Correspondence**.<sup>20</sup>

Issues aside, if correct, **Correspondence** affords a simple way to read off metaphysical conclusions from the characterising generic's corresponding kind-predication, even when the semantics of characterising generics is quantificational.<sup>21</sup> To see an instance of **Correspondence** in action, consider once again (2) ('Gold is shiny') and its corresponding kind-predication in (32):

(34) This kind of metal is shiny.

From this true kind-predication, by **Plenitude**, we have that a kind of metal exists, and by **Kind-property**, we have that the kind that possesses the property of being shiny. **Correspondence** and any accompanying ontological commitments it presupposes (about the relation between that kind of metal and gold), in turn, supports the conclusion that the extant kind is gold, so we can conclude that the kind gold is itself shiny. And since **Correspondence** applies in generality—that is, for every true characterising generic, then any true generic (even characterizing sentences) will yield metaphysical conclusions about the properties possessed by kinds.

## 6 | DIFFERENT QUANTIFICATIONAL VIEWS AND THE NATURE OF KINDS

While the discussion in §3-4 already allowed us to draw some conclusions, it may nonetheless be fruitful to ask what more we can learn about the metaphysics of kinds by considering the semantics of characterising generics more directly. Intuitively, characterising generics express some sort of general truth about members of a kind. However, if that's all they do, then it's unclear whether considering their semantics will tell us anything at all about the metaphysics of kinds as such. Quantified generalisations like 'most bicycles have two wheels' or 'gold is always shiny' may be about members of the bicycle-kind and gold-kind, but it's far from clear that they tell us anything about bicycle-kind or gold-kind, as opposed to merely about their members.

Indeed, it gets worse for those who want to learn about kinds from generic sentences. Some prominent theorists of generics hold that generics don't even quantify over kind members, but rather property instantiators, or even no circumscribed range of entity in particular. Thus, Krifka (2004) articulates arguments for this view of their logical form, and Lewis (1975) offers a semantics for adverbs of quantification in general based on such a logical form. On such a view, characterising generics are not about kinds at all. Somewhere in between this view and the view that characterising generics are indeed about kinds is Sterken (2015), who offers a semantic theory whereby the implicit quantifier of characterising generics, *Gen*, is an indexical, and therefore capable of expressing any generalisation whatsoever depending on context—in principle, it is only constraints on articulated lexical meaning, metasemantics and context that might limit what generalisations can be expressed by characterising generics. On all these views, the link between generics and kinds is non-existent, tenuous or only of importance when it's called for by context.

That said, although there is much to recommend these analyses, as a matter of fact most theorists *do* take characterising generics to be about kinds in a substantial sense. Some cite as motivation that there is strong

semantic evidence that bare plurals (or the sentence-initial terms of characterising generics) involve a type-shifted kind-term (Chierchia, 1998; Cohen, 2012); so that 'Coke bottles', for example, unambiguously denotes the kind Coke bottles, but is type-shifted when it functions quantificationally. Others cite as motivation, the many ways in which characterising generics seem semantically or cognitively very different from plain quantified sentences: they allow for exceptions, they're lawlike, they can express a wide variety of what seem to be semantically incompatible statistical generalisations, and they're cognitively primitive.<sup>22</sup> If characterising generics are about kinds in a substantial sense, then one way to account for these apparent differences between generics and plain quantified sentences is to push their explanation into the domain of metaphysics (either the metaphysics of kinds or the relations between kinds and properties, what some might call genericity itself). The most prominent such attempt is that of normality theories.<sup>23</sup>

Normality theories take generics not to be about what is *common* or *frequent* for a kind, but rather, to be about what is *normal* for a kind. The most straightforward version of such a view takes 'Ks are P' to be true just in case all normal Ks are P. Normality, on such a view, stands in stark contrast with commonality. A property P could be ubiquitous among Ks, even if it is abnormal (e.g., being painted orange). Moreover, a property P could be nearly or entirely absent among Ks, even if it is normal (e.g., Dobermans having floppy ears).

What would such a view teach us about the metaphysics of kinds? One simple thing: that there are facts about what it is to be a normal member of a kind. Furthermore, there would have to be normality facts not just for a few select kinds, but for any kind about which we can formulate a true generic. This multitude of facts about kind-normality is a substantial commitment.

Theorists have developed normality-centric theories in a number of different ways, which vary in their metaphysical commitments. We'll now consider two such theories, which show the subtle and interesting connections between extra-semantic facts and semantic facts, and in turn between semantic facts and metaphysical facts, that the literature suggests.

In a series of papers, Asher, Pelletier and Morreau develop a theory that proceeds from the central observation that generics allow us to make *defeasible inferences*. Knowing that Tweety is a bird, I can defeasibly infer that Tweety flies. A first thought as to what makes that inference a reasonable one is that it involves a generic enthymeme to the effect that birds fly. But that's not the whole story. Not all birds fly: injured ones and penguins don't. But normal birds do. So maybe the generic enthymeme involves normality: to say that birds fly is to say that normal birds fly. And the defeasibility of the inference arises from the fact that Tweety may not be normal.

That's the barest sketch of Asher, Pelletier, and Morreau's view, but it suggests this line of thought: generics involve normality, so there must be metaphysical facts about normality out there making generics true. So, if this semantics were right, we could conclude that there is a metaphysical story to tell about a kind's normality, even if that story remains untold, as it does by Asher, Pelletier and Morreau.

Bernard Nickel presents a theory in a similar vein, which helps flesh out the (or an) idea of normality that might be at work here. To a rough approximation Nickel holds that a generic like 'Ravens are black' is true iff all normally-coloured ravens are black. More generally, the predicate 'P' in a generic 'Ks are P' determines some dimension (e.g. colour), and the generic is true iff all Ks that are normal in that dimension are P.<sup>24</sup> Nickel does not rest content leaving the notion of normality unanalyzed, however. Rather, he takes it to be a proprietary notion that is defined in terms of certain sorts of explanations.

Nickel's theory contains many elements we can't get into here. Let's just take a look his view of the truth-conditions of characterizing sentences, while skipping over exactly how we derive them in a compositional semantics:

A generic 'Ks are P' (where 'K' picks out a kind) is true relative to explanatory strategies S iff it is possible to explain why P is present among Ks by the most general invocation of one or more of the explanatory strategies in S.

There's quite a bit to unpack in these truth-conditions. An example may help. We can explain the truth of 'Ravens are black' in terms of the mechanisms of evolutionary colour-adaptations. The reason that the property of being black is present in raven-kind is that raven-kind evolutionarily adapted in such a way to exhibit that property. This explanation involves a kind both in the explanans and the explanandum. Similar remarks will hold for other generics.

The fact that kinds are potentially invoked in both the explanans and explanandum of Nickel's explanations places a constraint on the metaphysics of kinds. For Nickel, the truth of a generic requires the existence of explanations. There must exist kinds, and they must be the sorts of things that can be involved in the relevant explanations.<sup>25</sup>

What about normality? For Nickel, normality is tied to explanation (2016, p. 197). In particular, Nickel takes it to be the case that there are mechanisms that underlie the explanations invoked in the truth-conditions of generics. Whenever we can explain the presence of a property P in a kind K by using an explanatory strategy S, there is a mechanism underlying this explanation. Taking a mechanism just to be a series of events, then we can understand normality in terms of participating in these events. A particular raven is colour-normal in virtue of participating in a mechanism that is the result of evolutionary colour adaptations. Once we appreciate that Nickel understands normality in terms of such mechanisms and explanations, we can see that his notion of normality requires the existence of kind-level explanations as well as their underlying mechanisms.

## 7 | CONCLUSIONS

This paper canvassed what a number of different theories of the semantics of generics can tell us about the metaphysics of kinds. What we've found is that these theories differ markedly in their metaphysical commitments regarding kinds. Nonetheless, spelling out these connections is a valuable exercise. If we knew the correct metaphysics of kinds, this would help us adjudicate among semantic theories of generics. Likewise, if we knew the correct semantic theory, we'd learn more about the metaphysics of kinds.

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## ENDNOTES

- <sup>1</sup> For a general overview of theories of generics, see, for example, Leslie and Lerner (2016) and Sterken (2017).
- <sup>2</sup> Controversies include whether the quantifier is syntactically an adverb or determiner (Carlson 1989; Rooth, 1995), whether it is context-sensitive (Sterken, 2015), whether it is contributed via pragmatic means (Cohen, 2012; Nguyen 2019), and whether it is semantically simple or not (Leslie, 2008; Liebesman, 2011; Sterken 2016).
- <sup>3</sup> Further arguments that so-called kind-predications are genuinely best analyzed as containing kind predication are given in Liebesman and Magidor (2017, in progress).
- <sup>4</sup> See Frege (1895, p. 223), Salmon (1998), Caplan (2004) and Kroon (2015) for recent discussion.

- <sup>5</sup> Wilkinson (1995) discusses such phrases.
- <sup>6</sup> Krifka et al. (1995, p. 54) note that the sentence “This machine crushes oranges” may be true even if, as a matter of fact, the machine is never used to crush oranges
- <sup>7</sup> See, Rothstein (2017) for an overview and further references.
- <sup>8</sup> See Krifka et al (1995).
- <sup>9</sup> See Dayal (2004), Borik and Espinal (2015), Chierchia (1998), and Ojeda (1993).
- <sup>10</sup> A natural temptation is to accept **Plenitude** but claim that kinds are somehow shallow or deflated. Whether this is tenable will depend on the properties of kinds, as revealed by Kind-Property, as well as one’s conditions on entities being shallow/deflated. For instance, in order to determine whether kinds are pleonastic, in Schiffer’s (2003) sense, we’d have to determine whether the properties they are revealed to have by **Kind-property** qualify them according to his conditions for being pleonastic.
- <sup>11</sup> Notably Liebesman (2011), Carlson (1977), Teichman (2016), and Liebesman and Magidor (2017, in progress).
- <sup>12</sup> See especially Carlson (1977), Liebesman (2011), and Liebesman and Magidor (2017, in progress).
- <sup>13</sup> Many find this counterintuitive. See Liebesman (2011) and Liebesman and Magidor (2017, in progress) for responses.
- <sup>14</sup> There are of course major subtleties here that we’re glossing over. We refer the reader to Carlson (1977), Kratzer (1995) and Chierchia (1995).
- <sup>15</sup> Important complications here are how one understands habituals and capacity/disposition readings.
- <sup>16</sup> See, for example, Carlson (1989), Leslie (2015) and Sterken (2016).
- <sup>17</sup> Liebesman and Magidor (2017, in progress) discuss such correspondences in more detail.
- <sup>18</sup> See Wilkinson 1995.
- <sup>19</sup> See Doran and Ward (2019, p. 244) and Krifka et al. (1995, p. 74).
- <sup>20</sup> Another way to go is to weaken the ontological relation between *k* and *K* that **Correspondence** presupposes. If **Correspondence** is formulated instead in terms of intersubstitutivity *salve varietae* of the given subject terms, in terms of any sort of kind-referring sentence whatsoever, or even in terms of joint felicity, then **Correspondence** need only presuppose whatever ontological commitments are brought about by the relevant linguistic and communicative commitments.
- <sup>21</sup> We discuss complications that arise when trying to read metaphysical conclusions about kinds off of quantified sentences in Section 5.
- <sup>22</sup> See, for example, Carlson (1977), Krifka et al. (1995), Leslie (2008), Nickel (2016) and Pelletier and Asher (1997).
- <sup>23</sup> See, for example, Nickel (2016), Pelletier and Asher (2017), Asher and Morreau (1995) and Asher and Pelletier (2012).
- <sup>24</sup> A bit more precisely: there is a way of being a normally coloured raven, such that all ravens that are normally coloured in that way are black. See Nickel (2008) and (2016) for arguments that we need to invoke ways rather than merely quantifying over all normal members of a kind.
- <sup>25</sup> For both Nickel, and Asher, Pelletier and Morreau, the relevant normality facts involve kinds. Though, it is possible to formulate a theory where the relevant normality facts are in terms of individuals, this is undesirable for the reasons articulated. It is consistent with such reasons, however, that some generics rely on normality facts about individuals for their truth. It is just that some complex story about the coherence of this group of normal individuals will need to be told. As an example, consider ‘Slow rivers meander’. Such a generic might be true for example by Nickel’s lights because there’s a mechanism that applies to slow rivers: because they’re slow, the rivers can’t wash away impediments and instead go around them. This explanation applies to individual rivers. Thus, some generics for Nickel, assuming there’s a suitable story about coherence that can be told, may rely on normality facts about individuals for their truth. That said, since this would only be for some generics, our primary point here still holds: true generics, according to normality theorists, give rise to metaphysical commitments about kinds—namely, that there are normality facts involving kinds. (Thanks to Bernhard Nickel and Josh Dever for discussion here.)

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