COMMENTS ON NATHAN SALMON "ARE GENERAL TERMS RIGID"[*]

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Princeton Semantics Workshop
17 May 2003

1. Nathan Salmon paper is entitled with a question: are general terms rigid? He asks this question in way of engaging the issue of the extension of the notion of rigidity beyond the domain of singular terms. While singular terms has been the province of most of the discussion of this rigidity since *Naming and Necessity*, it is well known that Kripke saw the notion extending to at least certain general terms such as terms for natural kinds. Scott Soames has recently weighed in on this issue in the latter chapters of his book *Beyond Rigidity*. His conclusion is that although there are significant overlaps in the properties of singular and general terms, there is no direct extension of rigidity to the general terms, and that rigid designation is properly applied only to singular terms. Salmon disagrees. His view, based in part of views dating back to his book *Reference and Essence*, is that there is an extension to be had, one which allows the application of the standard Kripkean characterization of rigidity to be applied to both sorts of terms. Central to his thesis is a claim about the status of certain definite descriptions. In these remarks, I will try to outline the issues to which NS is reacting, and the proposal he posits in response. I will then consider in a more critical light his claim about definite descriptions, bringing to bear considerations of their grammar.

2. To get the discussion of the ground, consider what we might call the standard theory. In it proper names designate individuals and predicates set satisfaction conditions, so that for a sentence such as "John runs" it delivers the truth-condition that "John runs" is true if and only if the designation of "John" is a thing that satisfies "runs." Rudimentary as this may be, it does illustrate a certain architectural feature that a semantic theory may embed, that there is a basic distinction between terms that are designators, and another class that are not. For instance, we might hold, for a natural language, that it is only expressions of the category noun phrases (NPs or DPs) that can be designators; expressions of other categories will not be. Note that in giving this characterization, we do not mean to metaphysically limit the class of designators. So, designators may be terms whose designata are concrete particulars, but we may also allow that there are terms such as "gold," or "water" or "blue," *when they occur as noun phrases*, that designate non-concrete particulars of some sort or other. (We may wish to have a mechanism for linking together such names of kinds with their corresponding predicates, under which instances of the kind fall; for example, we would link "gold," which designates a kind, with the extension of the corresponding predicate "is gold".)

Nothing complicated here. Nor in this day and age when we turn to rigid designation, for which we assume the standard K-definition, (as provided by NS):

> a term designates an object *x rigidly* if the term designates *x* with respect to every possible world in which *x* exists and does not designate anything else with respect to worlds in which *x* does not exist.

Applied to singular terms, this characterization will provide, along familiar lines, a distinction between rigid and non-rigid designators, where this corresponds to the linguistic distinction between proper names and definite descriptions. (I set aside the issue of *de facto* rigidity for the duration.)

Now what about the application of rigid designation to general terms? As stated, it does not apply at all, since general terms are not designators; there is nothing that they designate. There is thus a (not unprincipled) asymmetry between singular and general terms. Notice that on this view we have not precluded that kind terms, say, are rigid designators, for insofar as "gold" occurs as a noun phrase, and hence as a singular term, it may be a rigid designator. But one may nevertheless record some dissatisfaction with this result, since kind terms may *prima facie* occur predicatively, as in "This stuff is gold," and surely we would want our semantics to distinguish this case from "Max is happy." One is thus naturally drawn to the conclusion that predicative occurrences of kind terms are rigid designators. But of what?

One candidate that comes immediately to mind is that general terms designate their extensions. So suppose that we extend the standard theory to include a type hierarchy of the usual sort. The lowest type, type 0, are individuals; the next higher type, type 1, are collections of individuals; collections of collections of individuals follow next, and so on. Given this structure, the natural way to distinguish the designations of singular and general terms is to hold that the designations of singular terms are of the lowest type, i.e. individuals, and that the designations of general terms are of the next higher type, i.e. collections of individuals. That is, general terms designate their extensions, and we would render truth-conditions in terms of membership in an extension.

It would appear however, that if extensions are the designata of general terms, then we arrive quickly at the conclusion that even if general terms designate, they do not rigidly designate. (Or more precisely, most general terms do not rigidly designate, since some, for example, "natural number" will.) The reason is just that for any given pair of worlds in which there are blue things, the things that are blue need not be the same, they may vary from world to world. But if extensions are too weak to support

rigid designation, then at least one plausible alternative is too strong. So suppose we revise our extended standard theory to allow that the designations of general terms are properties. Initially this has some plausibility, for certainly the property *gold* is the same in all worlds, even if the gold things vary from world to world. Unfortunately, this is also true of all general terms; the properties *blue*, or *being happy* are invariant from world to world too. But if all general terms are rigid designators, this would seem to run afoul of a quite reasonable compositionality condition for rigid designation to the effect that if a complex expression *E* is composed of rigid designators (+ perhaps logic), then *E* itself is a rigid designator. It now follows that many (all?) definite descriptions would turn out to be rigid designators, given that they would be composed exclusively of rigid designators (and logic). (In contrast, on the prior views there is no problem, since *E* can be a non-rigid designator if it contains some term that is not a rigid designator.) As SS says, in a remark cited by NS, "there is no point in defining a notion of rigidity for predicates according to which all predicates turn out, trivially, to be rigid."

It would appear then that we are no better off for our extensions and revisions of the standard theory. We still don't appear to have isolated a notion of rigidity that is applicable to general terms as a generalization of the notion applicable to singular terms.

3. At this juncture, Scott Soames in *Beyond Rigidity* (chapter 9) suggests that we take a somewhat different tactic and categorize predicates in terms of the properties they *express*, to be distinguished from their designation. To this end, SS defines what it is for a predicate to be rigid in terms of whether it is an *essentialist* predicate, that is, whether "the property it expresses is an essential property of anything that has it." By this, predicates can now be bifurcated into the rigid and non-rigid depending upon whether they express properties that if an object has it, it could not fail to have (and still exist). SS ends up ex-

pressing considerable skepticism about this view, for reasons having primarily to do with the analysis of theoretical identities; he spends the final two chapters of his book constructed an analysis of such statements. His conclusion about rigidity is that there is no extension of this notion from singular terms that can do justice to the desiderata for rigidity for general terms. "In order to avoid confusion," SS counsels, "it may be advisable to reserve the terminology of rigidity exclusively for singular terms."

NS, for his part, is also none too impressed with the view just described; he thinks that it is a "non-starter." He gives two reasons why. The first is that it does not provide for a notion of designation that supports a notion of rigid designation for general terms; the second is that on this view color terms like "blue" are non-rigid. These observations are true enough, but to the extent that one subscribes to the view like the one SS outlines, it is hard to see why one would be moved by them. One would be moved, however, if one viewed the move as giving up prematurely in seeking a characterization of *rigid designation* for general terms. NS, for his part, thinks that there are good reasons for continuing that quest, so as not to sell short that proper names and certain general names are "rigid is correct, and its philosophical significance should not be missed or undervalued." So let's turn to his position, as he develops it in his paper.

4. NS lays out his strategy as follows:

> One way to proceed that is certainly more promising than the strategies Soames considers would be to define a notion of designation (*simpliciter*) for both singular and general terms in such a way that, applying the intended definition rigid designation *as is*, without modification, a natural-kind general term (and a color general term, a natural-phenomenon general term, etc.) designates its designatum rigidly whereas some other sorts of general terms designate only non-rigidly.

To make this stick, NS has to first give us a view of the designata of general terms, such that they can be rigidly designated. Thus, NS poses the following question: "What object . . . should a general term . .

. be said to *designate*." His answer is that general terms designate "some appropriate universal or other." So, just as singular terms designate individuals, general terms designate universals, and given such designata, general terms can rigidly designate just as singular terms can. So, on NS's view, just as we have proper names of particulars, so too do we have "general names" of universals, and instances of each of these sorts of terms will rigidly designate those (different sorts of) designata.

An immediate consequence of this view, duly noted by NS, is that *all* general terms are rigid. This result should be neither surprising nor strange; if we are non-plussed about the claim that *all* singular proper names are rigid, we should be equally non-plussed about the claim that all general names are rigid. Nevertheless, the latter claim does appear to run afoul of SS's admonition about theories that make all predicates rigid. But here NS tells us we must be careful to "distinguish sharply between a general term . . . and its corresponding predicate." "Man" is not the same as "is a man." Indeed, to this point we have been rather coarse as to what constitutes a *general term* in a language, and we have, at least implicitly, assumed that semantically "man" and "is a man," both of which are standardly categorized as general terms, are to be identified. But of course this assumption can be questioned, and if they are not to be identified, then as NS points out, "Even if every common noun (whether a single word or a phrase) emerges as a rigid designator . . . , it does not follow that every general term is rigid." *Mutatis mutandis* for singular terms - it doesn't follow from every proper name being a rigid designator that every singular term is a rigid designator. So, we can set aside SS's remark, at least as stated, for it does not apply to the claim that NS is making, which applies only the narrower class of common nouns, and it does not seem *prima facie* absurd to say that they are all rigid, given that we exploit the parallel with proper names.

To summarize NS's view, the notion of rigid designation applies uniformly - as he says on K's definition "without modification" - to both singular and general terms. The general terms can be bifur-

cated between those terms that rigidly designate and those that do not, where the rigid designators are intuitively the common nouns. This directly parallels the singular terms, where the rigid designators are intuitively the proper names. All common nouns, just as all proper names, rigidly designate, universals in the former case, particulars in the latter.

5. Although SS's remark regarding universal rigidity is not, as stated, applicable to the NS view, there is still a worry in this general vicinity. Given the compositionality principle, and given that we can have definite descriptions whose components are terms designating universals (and logic), wouldn't this make definite descriptions rigid? The answer, I would think, would be along much the same lines as the response to SS - we need to distinguish common nouns from predicates, which are also the building blocks of descriptions. That is, it would seem that in making the transition from common nouns to their associated predicates that at least in some cases (perhaps all?) there must be a map from a rigid common noun to a non-rigid predicate. Then since a definite description that contained such a predicate as a constituent would contain a non-rigid component, the entire description itself can be a non-rigid designator.

NS does give some indication of how this is to work. He proposes that there are predicate-forming operators, "*is* { }" and "*is-a* { }", the difference between them being just that the former applies to adjectives and mass nouns, the latter to count nouns. He defines the operators as:

> designating (with respect to a possible world and time) the function that assigns to any universal its metaphysical extension (in that world at that time)

Metaphysical extension is defined as follows:

> The *metaphysical extension* of a property P (in a possible world w at a time t) $=_{\text{def}}$ the class of possible objects that have P (in w at t).

Roughly, the predicate "*is* {blue}" designates (relative to w and t) the blue things (in w at t). What those things are need not be the same for every world. So, while the common noun "blue" rigidly designates a universal, the predicate "is blue" does not rigidly designate its extension. That definite descriptions are generally non-rigid designators is now compatible with the compositionality principle, since the predicates they contain may not be rigid designators.

(Notice at this juncture that things work out the same way for "gold" and "is gold" as for "blue" and "is blue." Thus, insofar as we want to be able to distinguish these on metaphysical grounds, there is still work to be done. Presumably this will turn on the properties expressed by the predicates, their intensional structure or meaning, (since there are no purely extensional distinctions to be drawn). One thing we might explore is along the lines that SS suggests, distinguishing essentialist from non-essentialist predicates. Such as project, however, apparently does not engage NS: "nontrivial essentialism concerning natural kinds . . . is an intrinsically metaphysical doctrine, or set of doctrines, not reducible to, or obtainable as a product of, the philosophy of language or science." (*Reference and Essence*, p. 6). What is obtainable from the philosophy of language according to NS is rather an account of rigid designation, and it is just this that he is seeking to provide for general terms.)

6. As we have been depicting the NS view, it is a proposal about the designation of general terms; the underlying intuition being that the *design* of general designation is the same as that of singular designation, *modulo* the difference in the sort of the designata. Thus, in both camps there are terms that rigidly designate, i.e. proper names and common nouns, (the latter to be distinguished from the predicates in which they figure). However, there also seems to be an asymmetry. While for singular terms there are also non-rigid designators, there do not seem to be any comparable non-rigid designators that are general

terms, and which have the sort of syntactic comparability that proper names and definite descriptions have as singular terms. If there were, it would certainly seem to put some meat on the bone of NS's claim that not every general term is rigid.

So, are there such terms? NS believes that there are; they are what he calls adjectival definite descriptions. The example he gives is the following, picking up on observations of Bernard Linsky:

(*A*) My true love's eyes are the color of the sky

The claim here is that "the color of the sky" is a *general*, not a singular, term. NS's discussion of the case proceeds by first attempting to rule out an account by which it is singular term, then providing a rendering of the description by which it is a general term, and finally showing how this is no impediment to seeing certain intuitively valid inferences as formally valid. Let's examine these in order.

In arguing that "the color of the sky," as it occurs in (*A*) is not a singular term, NS first observes that the occurrence of "be" in this sentence is not the identity relation, which presumably it would be if it were flanked by singular terms. He says this is because "the color blue is a single universal whereas the speaker's lover's eyes are two particulars, and hence not both identical to a single thing." As it stands, this is a rather strange way to put it, for suppose that my true love is cyclops. But there is a point here, namely that no particular can be identical to any universal, and so (*A*) cannot be an identity statement. Or at least it cannot be a statement of objectual identity. It could be an identity statement if one were for instance to follow Geach in holding that identity statements are incomplete expressions, to be analyzed as "*x* is the same *C* as *y*," where "*C*" is a contextually fixed variable. Then (*A*) would be rendered as:

(*A'*) My true love's eyes are the same color as the color of the sky.

(*A'*) by no means seems to be an inaccurate rendering of (*A*), in which case "the color of the sky" would stand as a singular term argument of the identity relation.

NS proceeds to attempting to eliminate another possibility, (one to which he believes that SS is committed to). On this proposal, the occurrence of "be" in (*A*) is a "be" of possession, a third form of the copula above and beyond identity and predication. Of this, NS says: "This rather strained account raises the question of why "to have" should come to masquerade as 'to be'." Now, of course, this is not an unreasonable question as it stands, and one could research the answer both in the history of the language and cross-linguistically. Given the constraints, I'll refrain from that enterprise here, and focus on why such an account is "strained," since it does not strike me necessarily as so. That is, it strikes me as no more strained to observe that the "be" of predication may have a range of construals as it is to observe, for instance, that " 's" in "John's book" may have a range of construals, for instance meaning ownership or authorship. Whether this is an actual ambiguity, in the sense that there is more than one word "be" in the language, or just a range of interpretations possible for a single word, is a matter of linguistic analysis. But however this turns out, it is not difficult to observe that there are a variety of ways of understanding sentences containing "be." For example, in *Indices and Identity*, Fiengo and I draw attention to what we called *indicational* "be," sentences of the form ⌈*A is B*⌉ which are true just in case the reference of *A* has properties indicating the reference of *B*. Understood this way, the sentence "Olivier was his father," may be true, for instance if Olivier was portraying his father in a play. Or consider "That sound is Jane," where some sound indicates the presence of Jane. Such examples, note, would be false if "be" were construed as either identity or predication.

We should observe at this point that it is not altogether clear that NS does not himself assume a "be" of possession. For consider again his analysis of "be" in terms of metaphysical extension, where

the latter notion is defined as the class of possible objects that *have* some property. Aren't we just bringing possession in through the back door in the definition of "our old and dear friend, the 'is' of predication"? If "be" of predication is none other than "be" of possession, then what is wrong about analyzing (*A*) in this manner?

With this said, we can nevertheless establish that (*A*) is a predication, and not an identity statement. It can, for instance, occur in typically predicational contexts:

> I consider my true love's eyes the color of the sky
> I consider my true love's eyes beautiful/a sight to behold

Morever, note the ungrammaticality of the following, an example of Higginbotham's:

> *He is stupid and John

The reason for this is that the copula would have to be doing double duty as predicative and identity "be." In contrast, the following is grammatical:

> My true love's eyes are the color of the sky and a sight to behold

Since "My true love's eyes are a sight to behold" is a predication, it follows that (*A*) is a predication too.

7. Now to continue the description of NS's account, he proposes an analysis that has the following properties: (i) "be" is the "be" of predication; (ii) "the color of the sky" is a general term. By this, the logical form of (*A*) to be no different than that of (*B*):

> (*B*) My true love's eyes are blue

The account turns on analyzing so-called adjectival descriptions - i.e. "the color of the sky" - as second-order definite descriptions as follows:

$$\iota F\left[\textit{is-a}^2\ \{\text{color}\}(F)\ \&\ \textit{is}\ \{F\}(\text{the sky})\right],$$

where "*F*" ranges over universals and "*is-a*^{2} {α}" is second-order predicate. This term can then stand as the argument of the predicate forming operator "*is* { }" to form a predicate, just as "blue" can, and under such an analysis, as NS points out, the following inference is intuitively valid:

> My true love's eyes are the color of the sky
> Blue is the color of the sky
> ∴ My true love's eyes are blue

Formalized, this goes as follows, as an instance of substitutivity under identity:

> ∀x [*is-a* {eye of my true love}(x) ⊃ *is* {ιF [*is-a*^{2} {color}(F) & *is* {F}(the sky)]}(x)]
> blue=^{2} ιF [*is-a*^{2} {color}(F) & *is* {F}(the sky)]
> ∴ ∀x [*is-a* {eye of my true love}(x) ⊃ *is* {blue} (x)]

While there are questions of how to extend the account (e.g. how to we render "the most beautiful color in the world" as it occurs in "My true love's eyes are the most beautiful color in the world"), let us take it as it stands, and proceed to consider matters further.

8. On NS's proposal, "the color of the sky" is an adjectival description, and so "My true love's eyes are the color of the sky" is a predicate adjective construction. It seems to me that there are a number of fairly obvious problems such an account on straightforward linguistic grounds.

First of all, there are obvious problems of syntactic formation with NS's account of the predicate-forming operators, which, as specified, take *nouns* and *adjectives* as arguments. On the one hand, it is incorrect that the copula takes elements of these categories as syntactic arguments; rather it takes noun *phrases* (or DPs) and adjective *phrases*, (as well as prepositional phrases and clauses). On the other hand, as NS's view stands, the phrase "the color of the sky" cannot be an argument of "be" because it is neither a noun nor adjective. Perhaps these problems can be fixed with some appropriate juggling of the putative

rules for forming predicative constructions. I leave that as a homework problem, and turn to a somewhat more problematic matter.

The problem is this. If "My true love's eyes are the color of the sky" is a predicate adjective construction, then "the color of the sky" must be adjectival, *pace* the previous remark, an adjective phrase. But "The color of the sky" is not an adjective phrase, but a noun phrase (DP), as simple syntactic tests amply illustrate. So, it can occur in subject position:

> The color of the sky changes from dawn to dusk,

and can occur conjoined with other phrases whose nominal status is not under dispute:

> The color of the sky and {Max/the man over there drinking champagne} are two of my favorite things.

Moreover, the definite determiner "the" does not occur as the specifier of adjective phrases:

> *Max is the happy
> *Dulles was the suspicious of Angleton

"The" is prototypically a specifier of noun phrases. In fact, we can have the full range of nominal determiners preceding "color of the sky": "most/several/few/many/every/all/two/both color(s) of the sky" are all possible. Similarly, with adjectives we typically get *wh*-questions just with "how," as in "How happy is Max." But this is not what we find with the case at hand;

> *How color of the sky is my true love's eyes,

which is wildly ungrammatical. What is not, however, is:

> Which color of the sky is my true love's eyes,

which is just what we would expect if "the color of the sky" is a nominal.

A further observation arises from raising/small clause constructions. As is well-known we can have pairs like the following:

John appears to be happy
John appears happy

Typically such alternations occur with adjectivals and not nominals, so that the second sentence of the following pair is degraded:

John appears to be a doctor
*John appears a doctor

Now consider the pattern we get when we take "the color of the sky":

My true love's eyes appear to be the color of the sky
*My true love's eyes appear the color of the sky

This pair patterns like the second pair, not the first.

Observe that we do get conjunctions like the following:

My true love's eyes are the color of the sky and beautiful

We should not, however, take that there is conjunction with an adjective (phrase) as an indicative that "the color of the sky" is adjectival. Rather, what we see here is a reflection of cross-categorial selection; it is an instance of the same phenomenon witnessed by examples like:

Max believes Oscar and that two plus two equals four

What we have in the former example is the conjunction of an NP and an AP. That this is so is witnessed by the distribution of *wh* words:

Which color of the sky and how beautiful are my true love's eyes

Of course,

*How color of the sky and how beautiful are my true love's eyes

is again wildly ungrammatical.

Note that to the extent that one might be tempted to take "color" as an adjective, given its occurrence in "the color purple" for instance, there is no reason to think that it can occur in predicate adjective constructions. So while we have "My shoe is blue," we do not get:

*Blue is a color,

but only the predicate nominal:

Blue is a color.

The obvious, and correct, conclusion to draw from all these observations is that "the color of the sky" is a noun phrase, and that "My true love's eyes are the color of the sky" is thus a predicate *nominal* construction, not a predicate adjective.

9. The observation that definite descriptions can stand as arguments of predicative "be" to form predicate nominals dates back at least to Strawson, who in "On Referring" distinguishes between descriptions used to mention an individual, and those used to say something about an individual already mentioned. Examples of definite descriptions occurring predicationally are not hard to find. Higginbotham points to the following:

Max is the man for the job,

where the predicational status of the description is attested by its occurrence in contexts that select for predications:

I consider Max the man for the job.

Another example, discussed by Fiengo and me in *Indices and Identity*, is:

Griswold isn't the best cook in town.

While this may mean that someone other than Griswold is the best cook in town, on the reading that interests us it is a way of saying, perhaps sarcastically, that Griswold is a bad cook. On this latter construal we have a predication, as opposed to the former, on which there is an (anti-)identity statement.

The point to emphasize here is that definite descriptions can occur quite generally as predications, (sufficiently so that it has been argued by Delia Graff that descriptions should always be taken this way). Given the context of the present discussion, it is moreover important to observe that they may occur predicationally even if they are not satisfied by universals, but rather by particulars, e.g. "The man for the job." As NS's system stands, such predicate nominals should not be possible, since arguments of "*is* { }" must be mass or adjectival. ("*is-a* { }" takes count arguments, but then we would get syntactically *"is a the man to do the job".) Even if we take the nominal "the color of the sky" in such as way that it is "adjectival" (for example, by glossing "adjectival" as "satisfied by a universal"), NS's approach is clearly missing a generalization about predicative constructions. One might want to rectify this while retaining at least the spirit of NS's approach by maintaining that definite descriptions can be ambiguous between first- and second-order renditions, and so they can be both singular and general terms, on the latter having an "adjectival" construal permitting a predicative occurrence. A considerably more promising approach in my opinion would be to develop a suggestion of Higginbotham's from his paper "Indefiniteness and Predication" that the occurrence of nominal arguments in predications depends upon the interpretation of the *specifier* of the nominal phrase, On Higginbotham's proposal, specifiers are indefinite if, in generalized quantifier terms, they depend only on the size of the intersection of their arguments; "the" qualifies as the intersection can be no more or less than one. Notice that this account does not depend on any metaphysical assumptions about the values of the arguments of the specifiers, *qua* generalized quantifiers. Rather, the strategy is to characterize a semantic property of the determin-

ers, and then maintain that phrases with such determiners can occur in predications, with the resulting predications having whatever semantics they have.

If something along the lines just described is correct, then it of course no support for holding that there are definite descriptions that are general terms, if being of this category is supposed to account for the occurrence of (at least some) definite descriptions in predications in virtue of their interpretation, (i.e. as designating universals). I think this is correct, although no doubt there is much to known about predicational occurrences of definite descriptions.

10. At this point, we need to take a moment to reconsider the central argument that NS provides for his position, namely that it allows the validation of the intuitive inference:

> My true love's eyes are the color of the sky
> Blue is the color of the sky
> ∴ My true love's eyes are blue,

formalized in the following fashion:

> $\forall x \, [is\text{-}a \, \{\text{eye of my true love}\}(x) \supset is \, \{\iota F \, [is\text{-}a^2 \, \{\text{color}\}(F) \, \& \, is \, \{F\}(\text{the sky})]\}(x)]$
> $\text{blue} =^2 \iota F \, [is\text{-}a^2 \, \{\text{color}\}(F) \, \& \, is \, \{F\}(\text{the sky})]$
> $\therefore \forall x \, [is\text{-}a \, \{\text{eye of my true love}\}(x) \supset is \, \{\text{blue}\} \, (x).$

The argument is that this is valid because not only is there is both semantic constancy under substitution but also *syntactic* constancy, since "blue" and "the color of the sky" are rendered as general terms.

This latter claim, however, turns on an erroneous grammatical assumption, namely that the definite description is adjectival. As we have seen, the evidence indicates that "the color of the sky" is a noun phrase in all of its grammatical occurrences, and insofar as it is to be categorized as singular or general, it is a term of the former sort. The issue thus arises as to how we are now to validate the intuitive inference. To approach this, we will need to refine some of our assumptions.

One assumption that we will alter is that there is a type-structure of universals to the effect that above individuals of type 0 there are universals of increasing order; it is based on this that NS has second-order quantifiers over universals. What we will replace it with is the assumptions that the individuals (i.e. the things of type 0) are sorted; in particular, that we can divide the individuals between the particulars and the universals. Taken this way, universals fall within the range of first-order quantifiers, as do particulars. Moreover, we may assume that terms like "gold" or "blue," when they occur nominally or adjectivally designate universals, and do so rigidly, but when they occur embedded in predicates, the predicates designate their extensions, and are not rigid. This latter assumption carries over NS's claim about predicational "be," but dispenses with the proliferation of orders, as universals are of type 0. For the same reason, there will only be one order of identity "be," whose arguments can only be noun phrases. These assumptions, I believe, capture the spirit of NS's approach, while hewing to the grammatical facts.

Adapting NS's notation, we can render "the color of the sky," *qua* noun phrase, not in the second-order way, but rather as first-order:

$$\iota x \left[\textit{is } \{\text{a color}\}(x) \ \& \ \textit{is } \{x\}(\text{the sky}) \right]$$

"The color of the sky" denotes the unique object that satisfies the condition of being the color of the sky, which happens to be a universal; other descriptions of comparable logical form will be satisfied by particulars. The intuitive inference will now be formalized as follows:

$$\forall x \left[\textit{is } \{\text{an eye of my true love}\}(x) \supset \textit{is } \{\iota y \left[\textit{is } \{\text{a color}\}(y) \ \& \ \textit{is } \{y\}(\text{the sky}) \right]\}(x) \right]$$
$$\text{blue} = \iota y \left[\textit{is } \{\text{a color}\}(y) \ \& \ \textit{is } \{y\}(\text{the sky}) \right]$$
$$\therefore \ \forall x \left[\textit{is } \{\text{an eye of my true love}\}(x) \supset \textit{is } \{\text{blue}\}(x) \right].$$

This rendering unproblematically validates the inference, given our assumption that "blue" designates the same thing in both of the positions in which it occurs, (and that substitution is governed by formal symbol matching).

Nevertheless, there still may be a residual worry about this rendition having to do with its syntax. We have established that the definite description is a singular term, and given that "blue" stands as an argument of identity "be" in the second line, it too must be a singular term. But the occurrence of "blue" in the conclusion appears to be a *general* term. Putting the issue this way, however, does not seem to me most illuminating; my recommendation would be to put aside the singular/general term distinction as no longer appropriate. Rather, what I would see as at stake here is whether the formalization appropriately respects the grammatical structure of what is being formalized. Looked at this way, the issue is that "blue" as it occurs in the identity statement is a noun phrase, but as it occurs in the conclusion is an adjective phrase. With respect to inferences formalized as substitutions under identity, can such categorial variation be tolerated? It seems to me that there is no challenge to the validity of the inference formalized from such variation so long as substitutions are compatible with categorial selection. In the case at hand, we have already seen that "be" of predication selects cross-categorially, as witnessed by the conjunction in "My true love's eyes are the color of the sky and beautiful." The phenomenon we are observing here is thus no different than that it follows from:

Wiles proved that $a^n + b^n = c^n$ has no non-zero integer solutions for a, b and c, with $n > 2$,

that:

Wiles proved Fermat's Last Theorem,

given that $a^n + b^n = c^n$ has no non-zero integer solutions for a, b and c, with $n > 2$ is Fermat's Last Theorem; cf. "Max proved the Goldbach Conjecture and that the moon's orbit is governed by the gravitational field of the Earth" where we have cross-categorial conjunction.

The issue that we have been discussing is to be distinguished from that which arises if we assume that the designation of "blue" is not constant across its different grammatical occurrences. For instance, we might assume, as we would on the (extended) standard theory described at the outset, that nominally "blue" designates a kind or universal, while adjectivally designates its extension. NS remarks on this view, presenting it in a manner compatible with assumptions made by SS, which agrees with the previous position in taking "the color of the sky" as having a first-order rendering. On this formalization, which NS gives as follows, the inference is not valid:

$$\forall x \, [x \text{ is an eye of my true love} \supset Is \, (x. \, (\iota y) \, [y \text{ is a color} \; \& \; Is \, (\text{the sky}, y)])]$$
$$\text{blue}_2 = (\iota y) \, [y \text{ is a color} \; \& \; Is \, (\text{the sky}, y)]$$
$$\therefore \forall x \, [x \text{ is an eye of my true love} \supset x \text{ is blue}_1.$$

(Translating NS's notation, "blue_2" is nominal, "blue_1" is adjectival, "is" is "be" of predication and "Is" is instantiation.) Matters can be remedied by adding, as an additional premise, the following meaning postulate:

$$\forall x \, (x \text{ is blue} \leftrightarrow Is \, (x, \text{blue})).$$

What this says is that x is in the extension of "blue" iff x instantiates blue.

NS is quite correct about the need for such a meaning postulate, if nominal and adjectival "blue" have different meanings. I am, however, less skeptical about such postulates than NS; they do not strike me as "suspicious-looking" at all. Given the underlying semantic assumptions, it is part of the *lexical* meaning of the word "blue" that it has different, though related meanings, in its nominal and adjectival forms. Specifying a meaning postulate is just the way of putting this aspect of lexical meaning into a

form in order that it may play a role in inference. As such, there is nothing particularly objectionable about meaning postulates.

Before closing, a couple of remarks regarding taking universals as individuals.

First, it might be argued that one thing captured by NS's approach that is lost on the alternative are aspects of conceptual subordination. So, for example, the concept *blue* is subordinate to the concept *color*, and consequently, "All blue things are colored" is true, perhaps even analytically so, but "All colored things are blue" is not true at all. If we take it that "blue" designates a level 1 universal, and "color" a level 2 universal, then we apparently have a semantically natural way of characterizing the subordination relation, which is not to be had if all universal-terms, including "blue" and "color," are of the same level. Unfortunately, doing justice to this issue goes beyond what we can do here. I just wish to observe that there are other ways of approaching this issue - for example, there is the long-standing tradition dating from Chomsky's *Aspects of the Theory of Syntax* that accounts for this aspect of meaning in terms lexical selection, that is, as part of the account of how lexical information is projected onto syntactic structure - that are independent of any assumptions about hierarchies of designata.

Second, if we are to include universals among the individuals, a worry might arise of the possibility of paradox. As is well-known, Frege, upon being informed by Russell of the paradox, responded that of the forms of the paradox Russell discussed, the conceptual paradox did not arise in his system because of the hierarchy of concepts. What was problematic for Frege was the existence of set-like objects among the individuals (i.e. the value-ranges), leading his system to run afoul of Cantor's theorem. If we eschew any hierarchy of types of universals, then Russell's paradox might appear to loom. But, if we assume only that universals are of the type of individuals, but that universals of universals are of a higher type,

then it would appear that we have the wherewithal to respond as did Frege. Alternatively, appropriate restrictions on the comprehension principle could be imposed that would disallow the troublesome predicates.

11. Time for some conclusions.

(1) "The color of the sky" is a noun phrase, and "My true love's eyes are the color of the sky" is a predicate nominal construction. Insofar as we wish to impose this categorization, "The color of the sky" is a singular, not a general, term. As such, it is not an example of a non-rigid general term.

(2) Common nouns *may* designate universals; if they do, presumably they do so rigidly. But one would want to know the utility of taking them so. For instance, what role would this play in a compositional semantics? One reason for taking them so might have to do with identity statements in which such terms occur, but we are still in need of a persuasive argument that identities can hold between nouns (and adjectives), as opposed to noun phrases. Moreover, as SS has argued, such theoretical identities should be eliminated in favor of universal statements, where the terms in question occur as predicates.

(3) Given considerations of compositionality, predicates (i.e. verb phrases, including predicate nominals and predicate adjectives) are not necessarily rigid designators, and it is open to question whether rigidity, in the sense relevant to proper names, applies to them at all.

(4) Related to (2) and (3) is the issue whether predicational "be" plays a semantic role (or has a semantic value). If common nouns and predicates have different semantic values, then "be" plays a role in mapping from the former values to the latter. If we identify the values of these two sorts of terms, then "be" plays no semantic role, but rather plays a purely grammatical role as a syntactic functor.

(5) NS has urged in this paper is that the rigid/non-rigid *designation* holds for general terms as well as singular terms. Insofar as this involves a departure from the standard theory, it remains unclear, at least on the evidence presented, that the case has been made.

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