The over-generalization problem: predicates rigidly signifying the "unnatural"

Dan López de Sa

Abstract   According to the *simple proposal*, a predicate is rigid iff it signifies the same property across the different possible worlds. The simple proposal has been claimed to suffer from an *over-generalization problem*. Assume that one can make sense of predicates signifying properties, and assume that trivialization concerns, to the effect that the notion would cover any predicate whatsoever, can be overcome. Still, the proposal would over-generalize, the worry has it, by covering predicates for artifactual, social, or evaluative properties, such as 'is a knife,' 'is a bachelor,' or 'is funny.' In defense, it is argued that rigidity for predicates as characterized plays the appropriate theoretical role, and that the contention that "unnatural" properties are not to be rigidly signified is ungrounded.

What is it for a predicate to be rigid? The following seems to be a plausible straightforward proposal. Inasmuch as rigidity for singular terms concerns sameness of signification across possible worlds,[1] so does rigidity for predicates: a predicate is *rigid*

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[1] Alternative labels to 'signification' are, among others, 'reference,' 'denotation,' and 'designation.' Throughout this paper, I assume that singular definite descriptions are singular terms, which signify the object that uniquely satisfies their matrices. This is only for convenience, as the main issues about rigidity can be recovered in terms congenial to a more Russellian treatment of them, see Sosa (2001). Qualifications dealing with worlds in which the relevant entities do not exist are omitted.

D. López de Sa (✉)
Department of Philosophy, New York University, 5 Washington Place, New York, NY 10003, USA
e-mail: dlds@nyu.edu

D. López de Sa
Arché—The AHRC Research Centre for the Philosophy of Logic, Language, Mathematics and Mind, University of St. Andrews, St. Andrews, UK

D. López de Sa
LOGOS—Grup de Recerca en Lògica, Llenguatge i Cognició, Universitat de Barcelona, Barcelona, Spain

iff it signifies the same property across the different possible worlds (and is *flexible* otherwise). This I call *the simple proposal* about rigidity for predicates. It is arguably suggested by (Kripke 1980) himself, and seems to be tacitly assumed in discussions in philosophy of mind, philosophy of science, or metaethics. However, it has received a number of criticisms in the recent literature. Among them: that it is unduly committed to the view that predicates *signify* entities like properties (*the signification problem*), and that it would trivialize the notion, by covering *any* predicate whatsoever (*the trivialization problem*). My aim in this paper is to defend the simple proposal from *another* objection. Although the objection is not usually formulated sharply, nor it is clearly distinguished from the trivialization concern, the idea behind it seems to be that the proposal would *over*-generalize, by covering predicates for artifactual, social, or evaluative properties, such as 'is a knife,' 'is a bachelor,' or 'is funny.' And this despite the fact about the (relative) "unnaturalness" of the properties signified. Hence I will label it *the over-generalization problem*.

The plan is as follows. In Sect. 1, I briefly present the simple proposal about rigidity for predicates, and the signification and trivialization problems for it, from which the over-generalization problem is to be distinguished. This is formulated in Sect. 2. Its main contention, that the class of rigid predicates should not go beyond those signifying natural (enough) properties, seems in itself ungrounded, as manifested by recent debates about the nature of colors (Sect. 3). Hence the over-generalization problem poses no difficulty for the simple proposal, *unless* some ground for the contention is provided. One attempted way is *via* the role that rigidity should play *vis-à-vis* the modal status of certain statements containing rigid expressions, notably the so-called "theoretical-identifications." I argue that this attempt fails, given that rigidity for predicates as characterized by the simple proposal successfully entails the necessary if true character of the relevant statements, including aposteriori ones (Sect. 4). Finally, I submit a different consideration on behalf of the defender of the over-generalization problem against the simple proposal, involving the "hidden essences" of the properties (rigidly) signified, but I argue that it also fails to provide the required ground (Sect. 5). I conclude that over-generalization is not a serious problem for the simple proposal about rigidity for predicates.

1 The simple proposal

According to the simple proposal, a predicate is *rigid* iff it signifies the same property across the different possible worlds (and is *flexible* otherwise).

It seems to me that the simple proposal is probably what implicitly guides philosophers' talk about predicates being rigid or not in the philosophical discussions that do not focus on the issue of rigidity for predicates. In any case, it clearly seems to be a natural and straightforward extension of the standard view about rigidity for ordinary singular terms. And it seems to have the intuitively right results concerning the rigidity and flexibility of predicates. Consider the following examples:

> 'is water' is rigid, given that it signifies the same property with respect to all worlds: that of being water.

'is the substance instances of which fall from the sky in rain and fill the lakes and rivers' is not rigid, given that it signifies the property of being made of H_2O-molecules with respect to the actual world, but the property of being made of XYZ-molecules with respect to an appropriate counterfactual world.

'runs' is rigid, given that it signifies the same property with respect to all worlds: that of running.

'exercises the way José prefers' is not rigid, given that it does not signify the same property with respect to all worlds: it signifies the property of running with respect to the actual world, but the property of swimming with respect to an appropriate counterfactual world.

These notwithstanding, the proposal has received a number of criticisms in the recent literature.

According to *the signification problem*, the simple proposal is unduly committed to the view that predicates *signify* entities (such as properties).

If predicates signify entities, then presumably they signify the same entities as some associated singular terms. Say that for any predicate F its *canonical nominalization*, F-*ing*, is the expression that results from F by replacing the first verb it contains by its gerund form. So 'being water,' 'being the substance instances of which fall from the sky in rain and fill the lakes and rivers,' 'running' and 'exercising the way José prefers' are the canonical nominalizations of the predicates 'is water,' 'is the substance instances of which fall from the sky in rain and fill the lakes and rivers,' 'runs' and 'exercises the way José prefers.'[2] It seems plausible to assume that, were predicates to signify, they would signify the same as is signified by their canonical nominalizations—as I have already done in the gloss of the examples above. Crispin Wright has pointed out that this would entail rejecting what he calls *the Reference Principle*: "Co-referential expressions should be inter-substitutable *salva veritate*, at least in extensional contexts, and inter-substitutable *salva congruitate* in all" (Wright 1998, 240). The principle would clearly be violated by:

'José runs' vs *'José running;'
*'The property of is water has instances' vs 'The property of being water has instances.'

Assessing how bad rejecting the Reference Principle would be requires further exploration I cannot provide here. For what it is worth, if it *is* bad, the simple proposal can in my view be restated as to avoid the undue commitment. One way to do this is by

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[2] The characterization serves only as a first approximation, given that as it stands does not work for complex verbs ('runs and listens to music at the same time'), modal verbs ('can run very fast'), and others. I will not try to finesse this here. Besides, paradoxical predicates of the sort of 'does not exemplify itself' are also ignored. I am indebted here to anonymous referees.

characterizing rigidity for predicates in terms of that of their nominalizations, thus: a predicate F is rigid iff its canonical nominalization F-ing is rigid.[3,4]

According to the *trivialization problem*, the simple proposal about rigidity for predicates would trivialize the notion, by covering *any* predicate whatsoever.

The defender of the simple proposal holds that (the canonical nominalizations of)[5] some predicates can signify different properties in different worlds. Plausibly, for instance, 'exercising the way José prefers' signifies running with respect to the actual world, but swimming with respect to an appropriate counterfactual world. But now consider the property exercising-the-way-José-prefers, which is (stipulated to be) had by something in a world iff it is the way of exercising José prefers in that world. Notice that the assumption that 'exercising the way José prefers' rigidly signifies this property—instead of flexibly signifying the different sports José prefers in the different worlds—has the same consequences regarding both the actual and counterfactual truth-values of sentences like 'Pedro exercises the way José prefers.'[6] Furthermore, one might suggest, if there is such a property as exercising-the-way-José-prefers, isn't it the obvious candidate for 'exercising the way José prefers' to (rigidly) signify? How could the simple proposal, and the flexibility of 'exercising the way José prefers,' then be defended? This worry would of course reappear with respect to *any* putative candidate of a flexible predicate whatsoever: how could its flexibility be defended given that an (abundant) property, tracking the actual and counterfactual extensions of the predicate, will always be available to be rigidly signified?

In what follows, I just assume that the trivialization problem can be overcome.[7] As I said, my aim here is to defend the simple proposal from *another* objection, *the over-*

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[3] The main effects of predicates and nominalizations signifying the same entity can be obtained by the following principle, which is plausible:

   If F is a predicate, F applies to something (with respect to a world) iff the thing has the property F-ing signifies (with respect to that world).

See the qualifications in footnote 2, and López de Sa (2007) for further discussion.

[4] Haukioja (2006) seems to have additional trouble with the idea of flexibly signifying entities *like properties*, which "unlike persons, planets and other physical objects, seem to be not world-bound entities" (Haukioja 2006, 159). Whatever the specific worry turns out to be, it is safe to assume that nominalizations would not part company with the (flexible) 'the number of planets' in this respect!

[5] I omit the qualification hereafter.

[6] This only requires something like the principle mentioned in footnote 3.

[7] For recent defenses against the problem, see LaPorte (2000), Salmon (2005), and López de Sa (2007). My own view is that the problem can be overcome by appealing to intuitions about the actual truth-values of identity statements involving nominalizations of predicates. To cut a long story short: to the extent to which one has intuitions that some such statements are (contingent but) true, one can provide the required reason for defending the flexibility claim—even in the presence of the alternative candidate (abundant) property. For if both nominalizations were rigid, the famous Kripkean argument would entail that the statements are necessary if true. The following seem to me to be precisely cases at hand, intuitively (merely contingent) true identity statements:

   Running is exercising the way José prefers;
   Being water is being the substance instances of which fall from the sky in rain and fill the lakes and rivers;

in contrast with

   Having a heart is having a liver.

generalization problem, which can be formulated even if it is granted to the defender of the simple proposal that she is in a position to solve the signification and trivialization problems.

2 The over-generalization problem

In effect, usually discussed in connection with (and sometimes conflated with) the trivialization problem, there is a further, different concern. The idea behind it seems to be that the simple proposal would over-generalize, by covering predicates for artifactual, social, or evaluative properties, such as 'is a knife,' 'is a bachelor,' or 'is funny.' Certainly the kind of consideration previously mentioned also seems to support their rigidity. To illustrate

> 'is a bachelor' is rigid, given that it signifies the same property with respect to all worlds: that of being a bachelor;

in contrast with

> 'has the marital status of Prince William' is flexible, given that it signifies the property of being a bachelor with respect to the actual world, but the property of being married with respect to an appropriate counterfactual world.

And this despite the fact that the properties signified are, we may suppose, "unnatural" (enough). According to the critics, this is an inappropriate *over*-generalization, as rigidity for predicates should apply only to predicates signifying natural (enough) properties—hence my labelling it *the over-generalization problem*.

Here is Schwartz' voicing of the worry, in his recent contribution to the debate:[8]

> Clearly there is an important difference between natural kind terms like 'gold' and nominal kind terms like 'bachelor'—and isn't this difference based on the rigidity of the one and non-rigidity of the other? (Schwartz 2002, 266)

The defender of the simple proposal certainly acknowledges that there is an important difference between predicates that signify natural (enough) properties and predicates that do not. But the proposal has it that this is *not* one based on their rigidity versus flexibility. The characteristic contention of the over-generalization problem—that it *is* so based—is by itself ungrounded, and the attempts to ground it fail. Or so I argue in what follows.

Footnote 7 continued

which is, intuitively, false (and necessary). For elaboration and further discussion, see the papers mentioned at the beginning of this footnote.

[8] Another recent proponent of the worry is Soames (2002), although he seems to have changed his mind on this (at least regarding general terms like 'bachelor' or 'knife'), see Soames (2006). See also Haukioja (2006).

3 Rigidly signifying the colors

There is a longstanding dispute as to whether colors are primary, fully objective properties or rather secondary, dispositional or response-dependent ones. One way of understanding this is as a debate about the nature of the property in terms of which the chromatic perceptual experiences, of normal color perceivers under normal viewing conditions, are to be explained. Is this relation to experiences something involved in the essence of the property, or rather it is merely involved in what plays a reference-fixing role with respect to our color predicates and terms?

But this debate seems to be orthogonal with respect to the issue of the rigidity of the chromatic expressions. Take 'is red.' Most participants on both sides of the debate agree that, whatever the nature of the explanatory property turns out to be, 'is red' rigidly signifies it. Here is, for instance, Wright's:

> We are … obliged to pay attention to the following intuition about colour: that had the typical visual equipment of human beings been very different, or had the lighting (by day) on the earth typically been of a quite different character—perhaps resembling the illumination generated by sodium street lighting—that need have made no difference to the colours things actually are. The extensions of 'red' and 'green' would not have been different if all human beings had been colour blind, and would not change if they were to become so. (Wright 1992, 113)

Thus the predicate 'is red' can be held to be rigid, even on the assumption that it signifies a secondary, dispositional or response-dependent property, rather than a primary, fully objective one. But if this is so, why couldn't a predicate signifying an artifactual property be rigid, like 'is a knife,' or a social property, like 'is a bachelor,' or an evaluative property, like 'is funny'? The contention that rigid predicates should coincide with natural kind predicates seems to be ungrounded. And unless the missing ground for it is provided, the simple proposal does not suffer from the over-generalization problem.

4 The (aposteriori) necessary if true character

One attempt to provide such a ground is *via* the role that rigidity should play *vis-à-vis* the modal status of certain statements containing rigid expressions, notably the so-called "theoretical-identifications."

The rigidity of ordinary singular terms accounts for the necessary if true character of (aposteriori) identity statements involving them, such as 'Hesperus is Phosphorus.' According to Kripke (1980), the rigidity of general terms and predicates plays an analogous role with respect to "theoretical identifications." Certainly that this be so is a *desideratum* for any proposal about the notion of rigidity for predicates. But one that the simple proposal seems to fulfill, after all—assuming that "theoretical identifications" for predicates are indeed identity statements involving nominalizations

thereof.[9] For the same kind of argument that shows that (1) in contrast with (2) is necessary if true

(1) Hesperus is Phosphorus;
(2) Hesperus is the Morning Star;

also establishes the corresponding thing concerning (3) in contrast with (4).

(3) Being water is being made of H_2O-molecules;
(4) Being water is being the substance instances of which fall from the sky in rain and fill the lakes and rivers.

Critics such as Schwartz would not disagree so far. But according to the simple proposal, as we have seen, not only are natural kind predicates like 'is water' and 'is made of H_2O-molecules' rigid, but (arguably) 'is a knife', 'is a bachelor' or 'is funny' are too. It is the rigidity of *these* predicates which, the worry has it, do not play the required theoretical role:

> we do not need the semantics of rigidity to explain the necessity of 'soda = pop' or 'bachelors are unmarried males' or 'hunters are people who hunt'. These types of statements were well known to be necessary on the basis of meanings long ago Saul Kripke was born. Furthermore, the supposed rigidity of terms like 'hunter', 'bachelor', and 'soda' does not support necessarily true but aposteriori identities like 'Hesperus = Phosphorus' or 'water = H_2O'. If there are no necessary aposteriori propositions with 'bachelor', 'hunter', 'soda', then their supposed rigidity offers nothing new or interesting at all and extending rigidity to them illuminates nothing. (Schwartz 2002, 271)[10]

Claims about interest or illuminatingness or lack thereof are usually hard to assess. But there are two points be made in response to the rest. First, the role that rigidity plays regarding the necessary if true character of the statements, both in the ordinary singular term case and in the predicative case, is independent of the epistemic status of the statements. The Kripkean argument mentioned obviously also establishes that (5) is necessary if true, and this regardless of its aprioricity:

(5) The sum of 2 and 4 is the sum of 1 and 5.

And second, 'is a bachelor' and the like *do* support necessarily true but aposteriori identifications, anyway. This is witnessed by (6).

(6) Being a bachelor is having the marital status Prince William actually has.[11]

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[9] Soames (2002), by contrast, claims that the form of the relevant "theoretical identifications" is that of universally quantified material conditionals or biconditionals. Under that assumption, Gómez-Torrente (2006) offers the contingent 'Popes are bishops' as establishing that the simple proposal cannot satisfy the *desideratum*. To my mind, what this and the contingent 'All tigers are red' and 'All and only gold samples are hot' clearly show instead is that Soames' and Gómez-Torrente's claim about the form of "theoretical identifications" is, exegetically, a non-starter.

[10] See also Haukioja: "[T]erms such as 'bachelor' do *not* support aposteriori necessities" (Haukioja 2006, 166).

[11] In his recent rejoinder to Schwartz (2002), LaPorte (2006) also makes the first of these two points. The example he uses is 'Cicero = Tully,' whose necessary if true character issues from the rigidity of the

Hence rigidity for predicates as characterized by the simple proposal does play the appropriate theoretical role regarding the necessary if true character of "theoretical identifications," including aposteriori ones. The contention that predicates for the unnatural should not be rigid has not been grounded yet.

5 Statements revealing "hidden-essences"

The only other way I know of attempting to substantiate the contention characteristic of the over-generalization problem involves the idea that some statements reveal the "hidden essences" of the properties signified.

> Kripke (1980, 134) gives a representative list of rigid predicates or general terms: 'cat,' 'tiger,' 'gold,' 'water,' 'iron pyrites,' 'heat,' 'light,' 'sound,' 'lightning,' 'hot,' 'loud,' 'red.'[12] If the externalist arguments of Kripke and Putnam are sound, …their normal application is based on manifest properties, yet they all possess criteria of correct application having to do with, for example, genetics or microphysical constitution, *which are non-manifest* and stable across worlds.

> On the other hand, expressions such as 'the clear, odourless and thirst-quench-ing liquid that flows in the rivers and falls down from the sky as rain,' 'bache-lor,' 'hunter,' and so on [are different in this respect]. … [T]here is no more to being a bachelor than being an unmarried man (i.e., no hidden property contin-

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Footnote 11 continued

names, he contends, even for people for which it would be apriori. Some people (including myself) would be inclined to think that 'Cicero = Tully' cannot be known apriori by anyone. But even for them, example (5) in the text should suffice.

(If expressions being *de jure* rigid are preferred, then take

(5′) Hesperus is the actual morning start,

assuming that the reference of 'Hesperus' is fixed *via* the descriptive material expressed in the right-hand side.)

   As to the second point, LaPorte argues that "there are necessarily true statements containing rigid desig-nators for *kinds* that *are* aposteriori" (LaPorte 2006, 332), and submits '*Brontosaurus = Apatosaurus*' as a case at hand. As we have seen, however, Schwartz' worry underlying the over-generalization problem seems not to be merely that there be relevant cases involving kind designators. After all, these are already provided by cases like that of water in (3), as Schwartz acknowledges. Rather the worry is that these will not be available for kind terms *signifying unnatural kinds*, such as 'being a bachelor.' Unlike LaPorte's, my example (6) does address this worry.

[12] As it is sometimes observed, Kripke did not only contend that certain expressions are rigid but also sub-mitted views about their specific semantics, which had their rigidity as a consequence: in the case of proper names, for instance, their (alleged) "Millian," non-descriptive character. The two kinds of claims are some-times conflated together in the literature, but they are clearly independent. This has been forcefully argued by various authors, who provide "neo-Fregean," descriptivist semantics for proper names which, nonethe-less, respect their rigidity—although in my view the point can also be made in connection with the case of (*de jure* rigid) singular definite descriptions such as 'the actual morning star.' Similarly, in the text around this cite, Kripke pictures similarly "Millian" semantic features for the (rigid) general terms and predicates that he would probably be hesitant to ascribe to '(is a) bachelor.' But, as just seen, this need not affect the tentative attribution I made in the introduction. In any case, it is important to observe that this exegetical issue plays no substantive role with respect to the main points of this paper. I am indebted here to the comments of an anonymous referee for this journal.

gently connected with their being called 'bachelor')… (Haukioja 2006, 163, my emphasis)[13]

Let me grant that something like (3) is not only an aposteriori, necessary if true statement, but one that reveals the essence of the property of being water. This is certainly *not* the case with respect to the statement about bachelorhood (6) (both here repeated):

(3) Being water is being made of H_2O-molecules;
(6) Being a bachelor is having the marital status Prince William actually has.

Although aposteriori and necessary if true, (6) does not reveal the essence of being a bachelor at all. The essence is arguably stated in (something along the lines of)

(7) Being a bachelor is being an unmarried man;

and is not "hidden," but rather apriori knowable.

I suspect that something like this is indeed what people usually have in mind when they pose the over-generalization problem. The thought would be that rigid predicates should account for the necessary if true character of statements involving them *and* signify properties whose "hidden essences" are revealed by aposteriori such statements. I take it that this comes very close to the contention that rigid predicates should be rigid, in the sense characterized by the simple proposal, *and* signify natural (enough) properties. To my mind, one such conjunctive notion is Haukioja's *proto-rigidity*:

An expression is proto-rigid iff (i) its normal application is based on *manifest* properties, and (ii) it has a stable *non-manifest* criterion of *correct* application across possible worlds" (Haukioja 2006, 162).

But this is so close in fact to the contention of the over-generalization problem that it fails to constitute a ground for it. The analogy with the case of ordinary singular terms can again help to make the point. An ordinary singular term is rigid iff it signifies the same object across the different possible worlds. In this sense, '9', 'the actual number of planets,' and 'the successor of 8' are all rigid singular terms. This entails that each of the following are necessary if true:

(8) 9 is the actual number of planets;
(9) 9 is the successor of 8.

(8) is aposteriori, but does not reveal the essence of the object rigidly signified—which is not "hidden," but rather stated in something along the lines of the apriori knowable (9). One might introduce a notion of "proto-rigidity" that applies to a singular term iff it is rigid *and* signifies an object with a "hidden" essence revealed by aposteriori, necessary if true identifications. This conjunctive notion certainly excludes

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[13] See also Schwartz: "'The honeybee = Apis mellifera' [does not] seem to be like 'Water = H_2O.' 'Water = H_2O' is necessarily true and *aposteriori* in the way that 'Hesperus = Phosphorus' is, but *it is giving the essence or underlying trait* of water, its chemical composition. 'The honeybee = Apis mellifera' is not *giving the biological essence or underlying trait* of the honeybee—that would have to be something about its DNA presumably. So 'The honeybee = Apis mellifera' is not analogous to 'Water = H_2O' either." (Schwartz 2002, 270–271, my emphases)

expressions such as '9.'[14] But, I take it, not many people would regard this as grounding the contention that, the notion of rigidity for ordinary singular terms over-generalizes by also covering '9.'

Now the situation with respect to the simple proposal about rigidity for predicates *is* clearly similar in the relevant respect. Therefore, the contention of the over-generalization problem remains ungrounded.

6 Conclusion

I conclude that over-generalization is not a serious problem for the simple proposal about rigidity for predicates.

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[14] Surprisingly enough, Haukioja (2006, 162) contends that proper names *are* proto-rigid, in his sense. Hence either he does not regard numerals as proper names or, more plausibly, when he talks about *proper names* he really means a proper subclass of them which (are rigid *and*) signify objects with "hidden" essences.