

Rigidity, General Terms, and Recognitional Capacities

Jussi Haukioja (University of Turku, Finland)

DRAFT – MAY 26, 2003

1. The Problem

It is often claimed that Kripke (1980) and Putnam (1975) established that many general terms, most importantly *natural kind* terms, are like proper names in being *rigid designators*. This insight has important consequences in the theory of *necessary* truths: the rigidity of terms such as 'Hesperus', 'Phosphorus', 'water' and 'H₂O' makes identity statements such as 'Hesperus is Phosphorus' and 'Water is H₂O' necessary (*a posteriori*) truths, given that they are true in the actual world. However, the extension of the notion of rigid designation to cover general terms has proved difficult in practice.

In the case of proper names, rigid designation can be characterised as *sameness of reference* or *sameness of extension* across possible worlds: a (rigidly used) proper name designates the same individual in all possible worlds (in which the individual exists). The necessity of identity statements between proper names follows quite straightforwardly. But sameness of extension clearly *cannot* be the proper characterisation of rigidity for general terms: the extension of a rigid general term can vary from world to world. For example, the extension of 'horse' can clearly vary from world to world: there are worlds in which, say, Bucephalus never exists, yet 'horse' is generally taken to be a rigid predicate.

Philosophers tend to move in one of two directions in response to this problem.¹ The first, perhaps less common, move is to equate rigid predicates with *essentialist* predicates.

¹ These correspond roughly to the two strategies given by Soames (2002, 249 ff). Soames ends up rejecting both strategies and aims to explain the necessity of theoretical identifications without appealing to the notion of rigidity (*ibid.*, Ch. 10).

According to this view (vaguely suggested by some remarks by Kripke and defended under the label 'rigid application' by Devitt and Sterelny 1999), a general term is rigid if and only if it is such that, if it applies to object *o* in a possible world *w*, then it applies to *o* in all worlds where *o* exists.

The essentialist view of rigidity does seem to capture some of the intuitions behind our talk of rigid predicates. All the standard examples of rigid designators seem to be essentialist expressions: Aristotle is Aristotle in any world in which he exists; a sample of water (it seems plausible) is composed of water in any world in which that sample exists. There are, however, serious problems with the view. Schwartz, for example, worries that the essentialist view makes rigidity too general a phenomenon (cf. his example of 'television set'; Schwartz 2002, 275). And according to Soames (2002, 251-259) the essentialist view fails to deliver the necessity of theoretical identifications, which rigidity was clearly supposed to deliver according to Kripke and Putnam. Furthermore, Soames (*ibid.*, 259) points out that the relational term 'hotter than', clearly used by Kripke as an example of a rigid term, is *not* essentialist.

I want to point out yet another problem for the essentialist view: it would seem to make *disjunctions* of rigid expressions would also count as rigid, which seems unacceptable. Take, for example, the disjunctive expressions 'either Aristotle or Margaret Thatcher', and 'either (composed of) gold or a (member of the species) tiger'. If object *o* satisfies one of these expressions in one world, it follows that it will satisfy it in any world in which it exists (provided 'Aristotle', 'Margaret Thatcher', 'gold' and 'tiger' are essentialist expressions in the sense required). But to call 'either gold or a tiger' rigid would seem to violate the intuitions of most of us. Even more clearly, to call 'either Aristotle or Margaret Thatcher' rigid would fly in the face of Kripke's original characterisation of rigidity for singular terms: the disjunction simply does not designate the same individual in all possible worlds.

The second, and intuitively quite appealing move is to say that a rigid general term designates the same *kind* or *property* in all possible worlds. Thus, to say that 'water' is rigid is to say that it designates the *same kind* or *same liquid* in all possible worlds, while the expression 'the clear, odourless and thirst-quenching liquid that flows in the rivers and falls down from the sky as rain' is non-rigid, because it does *not* designate the same kind in all possible worlds – it designates H₂O on Earth and XYZ on Twin Earth (supposing Twin Earth is in another possible world and not a faraway planet in the actual world). Views of this sort frequently come up in conversation, and they have been presented in print by Mondadori (1978) and Donnellan (1983). More recently, LaPorte (2000) has defended this solution as well. I will call this the *kind-rigidity* view below.

Though the kind-rigidity view may seem the natural extension of the notion of rigidity, it has severe problems. Most importantly, it threatens to make *too many* predicates rigid. For example, just as we say that 'tiger' designates the tiger kind in any possible world, can we not say that 'bachelor' designates the bachelor kind in any world, making 'bachelor' a rigid designator, and equally for a number of predicates which we do not normally think of as rigid? This objection is enough to make the kind-rigidity view unacceptable to many philosophers (Soames 2002, 260-261; Schwartz 2002). LaPorte, however, is ready to bite the bullet, claiming rigidity to be a common feature of general terms and not restricted to natural kind terms.

Intuitions may vary with respect to whether we can allow terms such as 'bachelor' to be rigid. However, it is important to realise that the problems of the kind-rigidity view do not end here. It faces the further charge of not being able to account for *non-rigid* expressions at all. For could we not say that the expression 'the clear, odourless and thirst-quenching liquid that flows in the rivers and falls down from the sky as rain', used above as an example of a *non-rigid* expression, designates the same kind, the clear-and-odourless-and-thirst-quenching-

liquid-that... -kind, across possible worlds? Of course the 'kind' named by this expression is a strange one, but the kind-rigidity view has no way of excluding it, at least not without substantial additions to the theory, or substantial background assumptions about the metaphysics of kinds (which would have to be made explicit).

One might respond that, in this respect, the kind-rigidity view is in no worse shape than the standard view about the rigidity of proper names – a parallel problem can be raised concerning proper names. For consider 'office persons', introduced by Sidelle (1992). Office persons are somewhat person-like entities, constituted at a given time and possible world by the (unique) person satisfying a certain requirement, such as holding an office. Thus we have the office person 'the President of the United States', or 'Prez', which (who?) is currently composed by George W. Bush, was composed by Theodore Roosevelt in 1903, by Thomas Jefferson in 1803, and various others in between. The problem then is to make sense of how there can be a *non-rigid* use of the expression 'the President of the United States' – rather, it would seem that there are two *rigid* uses, one (current use) designating George W. Bush in all possible worlds, the other designating Prez in all worlds.

It may seem promising to apply to *naturalness* here: a singular term is rigid iff it designates the same *natural object* in all worlds (where the object exists); a general term is rigid iff it designates the same *natural property* in all worlds. This strategy does not, I think, succeed in saving the kind-rigidity view. Rigid designation is supposed to be a categorical feature, not admitting degrees: either a term is rigid or it is non-rigid. Naturalness, on the other hand, is typically considered to be a matter of degree (*e.g.* Lewis 1986, 60-61).

In the case of proper names and other singular terms one may still be able to make this strategy work: individual objects and persons seem to be paradigm cases of *perfectly* natural individuals (at least as far as middle-sized physical objects and living organisms are

concerned), and this sets them apart from 'office persons' and similar unusual objects. But our typical examples of rigid natural kind terms do *not* designate perfectly natural properties (whatever they turn out to be). I do not think we have principled grounds to draw the line between those properties which are 'natural enough' for rigidity and those which are not.

2. Towards a Solution

I believe we can do better than the two views just presented. Using Jessica Brown's recent (1998) theory of how natural kind terms get their reference, I will show how we can give a proper account of what it is for a general term to be rigid. But first, let us briefly state the requirements that an adequate account of rigidity should meet. Following Soames (2002, 263) I take the following three requirements to be central:

- (i) [the notion of rigidity for predicates] must be a natural extension of the notion of rigidity that has been defined for singular terms;
- (ii) it must have the consequence that nearly all natural kind predicates are rigid, whereas many other predicates are nonrigid;
- (iii) it must play a role in explaining the necessity of true "theoretical identification sentences"

We saw in the previous section that the two main candidates for elaborations of predicate rigidity seem to fail to meet one or more of these requirements: the essentialist view runs into problems with requirements (ii) and (iii); the kind-rigidity view has trouble meeting requirement (ii).

As noted above, my account of rigidity draws on Brown's theory of natural kind terms. Her theory is intended to deal with two problems that face Kripke's and Putnam's views about

how natural kind terms refer – problems I will not go into here. She does not discuss issues having to do with rigidity, and I am not claiming that my account of rigidity *follows* from her theory; it doesn't. But, as Brown's theory is quite explicitly based on a parallel between proper names and natural kind terms, it is a promising place to look for suggestions on how rigidity should be understood.

Both proper names and natural kind terms, Brown claims, get their reference by being associated with a *recognitional capacity* for an individual or a kind. Very roughly, one can refer to a person or a natural kind only if one can, or one defers to subjects who can, *recognise* the person or kind in question.² One must note that having a recognitional capacity for a kind or a person does *not* entail an ability to distinguish the person or kind in question from every other actual or possible kind. Of course, in 1750 humans could *not* distinguish water from twater. Nonetheless, their term 'water' referred to water, and not twater, because they (1) had the ability to distinguish between water and other kinds which *in fact* existed in their surroundings, and (2) appreciated that whether a sample of a substance is water is determined by the fundamental properties of that sample (cf. Brown 1998, 285-287).

These requirements have parallels for the reference of proper names and other particular items: to be able to refer to my neighbour (by name) I need to have the recognitional capacity for him. But I do *not* need to be able to tell her apart from every other actual and possible person. To be able to refer to her, I need to be able to (1) distinguish her from other people I may meet in my neighbourhood, and (2) appreciate that the question of whether a given person *is* that particular person, is determined by some fundamental properties to which I have no direct access.

² Brown formulates her view so as to explain how a scientifically ignorant community can have a term for a natural kind, but clearly the view is intended to be generalisable to scientifically advanced communities, in which case the recognition of natural kinds may rely on technological devices (Brown 1998, 284).

If Brown is right, it is part of being competent in the use of a natural kind term that one appreciates the 'metaphysical nature' of kinds and persons. The mere ability to distinguish between, say, water and other kinds in one's environment, or one's neighbour and other people, on the basis of their appearances, is not enough. One's actual and counterfactual usage of the expression in question must also show an awareness (not necessarily explicitly acknowledged) of the fact that there is more to being, say, water, than merely displaying the appropriate superficial properties – there is something 'underneath' the superficial properties of both persons and natural kinds which determines whether the expression correctly applies to a given entity, and which is contingently connected with the superficial properties on the basis of which we recognise persons or instances of natural kinds.

To summarise, both proper names and natural kind terms (1) get their reference through being associated with recognitional capacities, yet (2) superficial properties are not sufficient for determining their correct application in the actual world; and (3) their correct application in counterfactual circumstances is determined by whether or not the relevant entities possess, in the relevant possible world, the same fundamental, non-manifest properties which are contingently connected with the appropriate recognitional capacities in the actual world.

The proper understanding of rigidity is, I think, to be found in (3). Rather than having the same *designation* across possible worlds, rigid expressions have a stable *non-manifest criterion of correct application* across possible worlds. With rigid expressions, the non-manifest properties which *in fact happen* to be involved in triggering our recognitional capacities in the actual world are taken to determine their correct application, not just in the actual world, but also in other possible worlds.³ According to this view, the real criteria of correctness for the use of rigid terms are in a sense *hidden* in the everyday use of the term –

³ This treatment of rigidity does not cover the alleged rigidity of terms denoting abstract objects (*i.e.* terms such as “three” or “the sum of two and five”). The rigidity of such terms would require a separate explanation, but I will not attempt to give one here.

this is why we can run a Twin Earth -style of story on them. I will call this view of rigidity the *hidden criterion* view.

3. Appraising the view

I will now try to show that the hidden criterion account of rigidity meets Soames' demands for a notion of rigidity for predicates.

(i) “*natural extension of singular term rigidity*”

Is the hidden criterion view a natural extension of the notion of rigidity that we already have for singular terms? It may not be entirely accurate to call it an *extension*, but I think the view does meet the spirit of Soames' first requirement. The view points out a common feature in how singular terms and natural kind terms (and, arguably, some other general terms) work, a feature which, in the case of singular terms, straightforwardly translates into the standard definition of rigidity. Take, as an example, the proper name 'Aristotle'. The hidden criterion of correctness for the use of this name will, obviously, be whatever properties constitute the individual essence of Aristotle. Thus, any individual to which 'Aristotle' correctly applies in a given world will inevitably *be* Aristotle. And similarly for any proper name.

(ii) “*nearly all natural kind predicates are rigid, many other predicates non-rigid*”

The hidden criterion view successfully explains the rigidity of natural kind predicates. Substance terms such as 'water' and 'gold' have microphysical constitution as the stable criterion of correctness; the correct application of species terms such as 'cat' or 'whale' is determined by genetics; and similarly for a range of natural kind terms that Kripke claimed to be rigid.

On the other hand, expressions such as 'the clear, odourless and thirst-quenching liquid that flows in the rivers and falls down from the sky as rain', 'bachelor', 'hunter', and so on come out non-rigid according to the hidden criterion view. There is no more to being the clear, odourless and thirst-quenching liquid that flows in the rivers and falls down from the sky as rain than satisfying that description; there is no more to being a bachelor than being an unmarried man (*i.e.* no hidden property contingently connected with their being called 'bachelor'); there is no more to being a hunter than being someone who hunts.

The hidden criterion view can also explain the rigidity of some relational expressions such as 'hotter than', used as an example by Kripke. We have a recognitional capacity for differences in temperature, yet we acknowledge that the superficial relational property of one object seeming hotter or colder than another is not what determines the correct application in other possible worlds: there is an underlying (relational) property, difference in mean molecular kinetic energy, which does that.

General terms which are not natural kind terms can also turn out rigid on this view. For example, many theorists subscribe to theories of colour which treat colour predicates as rigid. The account of rigidity put forward in this paper can accommodate such views quite easily. If colour predicates are rigid, the correct application of 'red' in other possible worlds is determined, not by whether they seem or would seem red to observers (like us) in that world, but rather by whether they possess the same underlying properties which make red things seem red to us (in normal conditions) in the actual world. That is, the criterion of correct application is a non-manifest property which is kept stable across worlds.

(iii) “*explain the necessity of true theoretical identification sentences*”

To meet Soames' third requirement, it would be best to show that the necessity of identification sentences involving *singular* terms, as well as that of theoretical identification

sentences, follows from the common feature formulated in the hidden criterion view. Let us start with identities involving singular terms, using 'Hesperus is Phosphorus' as our example.

'Hesperus' and 'Phosphorus' are both associated with recognitional capacities – to have a recognitional capacity for Hesperus is to be able to tell it apart from other objects one may see in the evening sky, and likewise for Phosphorus and the morning sky. But, as we saw above, in addition to possessing the relevant recognitional capacity (or deferring to people who do), competence in the use of these names requires understanding of the 'metaphysical' nature of celestial objects – understanding of the fact that whether an object in fact is Hesperus or Phosphorus is not determined by the familiar manifest properties relevant for recognition (appearing in a particular way in the morning or evening sky), but rather by some underlying properties.

I am not going to even try to settle the question of what, precisely, these underlying properties are in this case. But I am quite confident that they are going to have something to do with composition and origin – I will ignore the details and assume that being a celestial object with the same composition and origin as the object (primarily) responsible for our Hesperus-experiences is all there is to *being* Hesperus. Let us call this composition C and this origin O. C and O will, then, by the account given above, determine the correct application of 'Hesperus' in other possible worlds as well. Now, when we discover, *a posteriori*, that in the actual world Hesperus and Phosphorus are the same object, the planet Venus, we also discover that C and O determine the correct application of *both* names in all possible worlds. As a consequence, 'Hesperus is Phosphorus' is a necessary truth, provided it is true in the actual world.

For an identity statement between natural kind terms to be completely analogous to 'Hesperus is Phosphorus', we should find a case where two natural kind terms were in use *before* it was discovered that they are, in fact, associated with the *same* underlying properties.

The standard example of an *a posteriori* necessity involving a natural kind term, 'water is H₂O', is not quite analogous. By the account of natural kind terms given above, 'water' is rigid and associated with the non-manifest fundamental property of being composed of molecules consisting of two hydrogen atoms and one oxygen atom – this fundamental property is the criterion of correct application of 'water' across possible worlds, provided current chemistry is correct about water. 'H₂O', on the other hand, a (formulaic) abbreviation for 'a compound consisting of two hydrogen atoms and one oxygen atom'. Hence, it has exactly the same criterion of correctness across possible worlds as 'water', and 'water is H₂O' is necessary (if true). In this sense, 'water is H₂O' turns out to be analogous, not to 'Hesperus is Phosphorus', but rather to something like 'Hesperus is the celestial object with composition C and origin O' (cf. above). This sentence will also express a necessary truth.

Note that, in this explanation, we did not need to suppose that 'H₂O' is rigid. But is it? The first reaction of most people thinking about these matters, myself included, is likely to be that it is. However, I think this may just stem from an implicit assumption that something like the kind-rigidity view must be correct. Furthermore, Kripke seems to treat it as rigid. However, on the hidden criterion view, 'H₂O' comes out non-rigid. It seems we have two options: either bite the bullet and say that it is non-rigid, and that Kripke was misled by the analogy to the identity 'Hesperus is Phosphorus'. Or, we could try to weaken the requirements of the hidden criterion view to accommodate our (perhaps partly theory-driven) first inclination.

I am inclined to take the first course. We should note that 'H₂O' is quite different from most other examples of rigid general terms Kripke uses as examples. 'H₂O' is a theoretical term, introduced via a definition. It does name a natural kind, but it is not analogous to proper names in the sense that the natural kind terms 'water', 'heat' and 'cat' are. Rather, it is analogous to 'the object with composition C and origin O', which we are *not* as strongly inclined to classify as rigid.

4. Final Comments

The hidden criterion view captures, I think, at least some of the driving intuitions behind both the essentialist view and the kind-rigidity view. We have seen that, in the case of *singular* terms, the criteria of correct application are the *essences* of the type of individual in question. On the other hand, the criteria of correct application for rigid *general* terms are not essences of the individuals in the extension of the term, but rather, in some loose sense, essences of the *properties* or *relations* involved. This is how terms such as 'hotter than' can come out rigid: differences in temperature are not essential relational properties of ordered pairs of objects, but difference in mean molecular kinetic energy can be said to be the essence of difference in temperature.

Unlike the kind-rigidity view, this view does not commit one to any view on what general terms (natural kind terms in particular) *denote*. This is a major advantage of the view, I think. The question about denotation is a topic of active debate on independent grounds, and if we can explain rigidity without presupposing one or the other conclusion in that debate, so much the better. At the same time, my view takes into account what seems intuitively right about the kind-rigidity view: in the application of rigid predicates, there is an element which is kept constant across possible worlds. But this element is not a problematic abstract entity

such as a kind, denoted by the term. Rather, the stable element is the criterion of correct application in *particular* instances of using the rigid predicate in question.

References

- Brown, Jessica 1998: "Natural Kind Terms and Recognitional Capacities", *Mind* 107, 275-303.
- Devitt, Michael & Kim Sterelny 1999: *Language and Reality* (2nd edition). Cambridge: MIT Press.
- Donnellan, Keith 1983: "Kripke and Putnam on Natural Kind Terms", in Ginet & Shoemaker (eds.): *Knowledge and Mind*, 84-104. New York: Oxford University Press.
- Kripke, Saul 1980: *Naming and Necessity*. Cambridge: Harvard University Press.
- LaPorte, Joseph 2000: "Rigidity and Kind", *Philosophical Studies* 97, 293-316.
- Lewis, David 1986: *On the Plurality of Worlds*. Oxford: Basil Blackwell.
- Mondadori, Fabrizio 1978: "Interpreting Modal Semantics", in Guenther & Rohrer (eds.): *Studies in Formal Semantics*, 13-40. Amsterdam: North Holland Publishing Co.
- Putnam, Hilary 1975: "The Meaning of 'Meaning'", in *Philosophical Papers 2: Mind, Language and Reality*, 215-271. Cambridge: Cambridge University Press.
- Schwartz, Stephen P. 2002: "Kinds, General Terms, and Rigidity: A Reply to LaPorte", *Philosophical Studies* 109, 265-277.
- Sidelle, Alan 1992: "Rigidity, Ontology, and Semantic Structure", *Journal of Philosophy* 89, 410-430.
- Soames, Scott 2002: *Beyond Rigidity: The Unfinished Semantic Agenda of Naming and Necessity*. New York: Oxford University Press.