On a Broader Notion of Rigidity

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Abstract

According to S. Kripke, an expression is rigid provided it refers to the same object in all possible worlds in which the object exists. On the other hand, H. Putnam claims that an expression is rigid provided it refers to the same object in all possible worlds in which it refers to anything at all. The paper shows that the two notions of rigidity are not equivalent because (i) Putnam’s rigidity is much broader than Kripke’s; (ii) unlike Putnam’s rigidity, Kripke’s is interwoven with essentialism; and (iii) identity statements between rigid designators in Putnam’s sense need not be necessarily true (if true at all).

The present paper tries to show that the notion of rigidity discussed by Hilary Putnam differs considerably from the one introduced by Saul Kripke. Although Putnam himself ascribes his notion to Kripke, it will be shown that it is much broader than Kripke’s.

Being a rigid designator is a modal property of certain kinds of expression and it is usually defined in terms of possible worlds. It seems that all definitions of rigidity do justice to the following condition:

For an expression, $e$, to be rigid it has to hold that (i) there is at least one possible world, $w$, and an object, $o$, such that $e$ designates, or refers to, $o$ in $w$; and (ii) there are no two different possible worlds, $w_1$ and $w_2$, and two different objects, $o_1$ and $o_2$, such that $e$ designates, or refers to, $o_1$ in $w_1$ and $o_2$ in $w_2$.

The requirement (i) guarantees that $e$ is not a necessarily empty term (otherwise it would not be a designator). The requirement (ii) excludes that $e$ designates different objects in different possible worlds (otherwise it would be a non-rigid designator).
In what follows, I am interested solely in proper names and definite descriptions. I start with a short reflection about differences between the ways the two kinds of expression refer (Section 1). Then I discuss Kripke’s and Putnam’s definitions of rigidity and apply them to definite descriptions and proper names (Section 2). Finally, I draw some interesting philosophical consequences of the two notions (Section 3).

1 Satisficalional Reference vs. Conventional Reference

To begin with, let us start with certain vital differences between proper names and definite descriptions. Since the two kinds of expression refer to something in completely different ways, they are rigid (if at all) in different senses.

The definite description ‘(ιx)(Fx)’ (i.e., ‘the F’) refers to an object, o, provided o is a unique instance of the property (λx)(Fx) (i.e., the property being F) that is expressed by the predicate part of the description; if o is a unique instance of (λx)(Fx), we may say that it satisfies the descriptive condition of the description ‘(ιx)(Fx)’. To have a handy label we might say that definite descriptions refer satisficalationally. Now it is a truism that objects instantiate their properties only in, or with respect to, possible worlds. For an object, o₁, to be the unique instance of (λx)(Fx) in a given possible world, w, it has to hold that if any object, o₂, is an instance of (λx)(Fx) in w, then o₁ = o₂. Thus, the reference relation between a definite description and an individual has to involve another argument place reserved for a possible world. The reference relation for definite descriptions is a three-place one between an expression, an individual and a possible world.

Next, turn to proper names. There are good reasons to suppose that a proper name refers to the same object in all possible worlds without exception; this should hold irrespective of the object’s existence in a given world. Why? A proper name, n, refers to an object, o, only provided o was “baptized” by n; it means that there is a linguistic (semantic) convention associating n with o. No other condition is to be met either by the name or by the object. Consequently, we might say that proper names refer conventionally. What is important is that linguistic conventions are utterly independent of possible worlds. Possible worlds are but artificial tools used to explicate certain modal properties of the language. It has to be supposed that the language in question is already at our disposal and we are invited to describe some of its properties in terms of possible worlds. The assumption that there is a language ready for our
studying implies (among other things) that all its (simple) expressions have to have meanings fixed by suitable linguistic conventions prior to examining their modal properties. Concerning proper names, we have to assume that there are fixed linguistic conventions in the sense that for each proper name there is some object or other that is conventionally associated with the name in question. As a result, this association is established independently of possible worlds and we need not investigate them to find out what the proper name in question refers to. Now given this fact, a name has to refer to the same individual in all possible worlds without exception and regardless of the individual’s existence in the possible world in question. It may happen that the name refers to an object even in those possible worlds in which the individual fails to exist. Linguistic conventions have to be utterly independent of the state of affairs obtaining in particular possible worlds. Since linguistic conventions are not subjected to any developments undertaken in, or with respect to, possible worlds, the reference relation between a name and an object need not be supplemented with another argument place reserved for possible worlds. The reference relation for proper names is merely a two-place one between an expression and an object.

2 Kripkean Rigidity vs. Putnamian Rigidity

Saul Kripke introduced his notion of rigidity in this manner:

Let’s call something a rigid designator if in every possible world it designates the same object […] Of course, we don’t require that the objects exist in all possible worlds. Certainly Nixon might not have existed if his parents had not gotten married, in the normal course of things […]. In the same way, a designator rigidly designates a certain object if it designates that object wherever the object exists […]. (cf. [4, p. 48])

So, the notion of Kripkean rigidity (or K-rigidity, for short) can be defined in this way:

An expression, \( e \), is a rigid designator iff there is an object, \( o \), such that \( e \) designates \( o \) in all possible worlds in which \( o \) exists (and cannot designate anything else).

This definition is silent about what happens in those worlds in which \( o \) fails to exist. Anyway, for the reasons given in the previous section we
might add that (i) if $e$ is a definite description, it refers to nothing in those worlds and (ii) if $e$ is a proper name, it refers to something that does not exist in those worlds. After all, this seems to be suggested by Kripke’s discussion about the name ‘Hitler’; (cf. [4, pp. 77f])

Hilary Putnam seems to adopt Kripke’s notion of rigidity:

Kripke calls a designator ‘rigid’ (in a given sentence) if (in that sentence) it refers to the same individual in every possible world in which that designator designates. ([7, p. 231])

There is a remarkable shift in this quotation because it does not mention the existence of an object designated. So, we might put forward the following definition of Putnamian rigidity (or $P$-rigidity, for short):

An expression, $e$, is a rigid designator iff there is an object, $o$, such that $e$ designates $o$ in all possible worlds in which $e$ designates something.

Now the question is whether the notion of K-rigidity is the same as that of $P$-rigidity. In other words, we should inquire whether to say that a rigid designator refers to the same object in all possible worlds in which that object exists is the same as saying that a rigid designator refers to the same object in all possible worlds in which it refers to anything at all.

First of all, in the case of proper names there seems to be no difference. For the reasons given in the previous section, every proper name is $P$-rigid because it simply refers to the same object in all possible worlds. It has to be also K-rigid because if it refers to the same object in all possible worlds, it has to refer to the same object also in all those worlds in which that object exists.

Concerning definite descriptions it seems to hold that if a description refers to something in a given possible world, the object referred to has to exist in that world. For example, let us assume (as Kripke himself does) that the origin of an individual is essential for it. If Barack Obama is the offspring of the gametes $X$ and $Y$ (in our world), ‘the offspring of gametes $X$ and $Y$’ has to be a K-rigid designator – it refers to Obama in all possible worlds in which he exists because in all those worlds he cannot but be the offspring of the two gametes. Analogously, the description is $P$-rigid because it refers to Obama in all possible worlds in which it refers to anything at all; for it is only Obama himself who is capable to satisfy the descriptive condition. This holds quite generally: all K-rigid descriptions are $P$-rigid as well.
Now, are there definite descriptions that are P-rigid without being K-rigid? The answer is positive, if the following requirement can be met:

Given that \(d\) is a definite description and \(o\) is an object, (i) for all possible worlds, \(w\), in which \(d\) refers to something, it refers to \(o\) in \(w\); and (ii) there is at least one possible world, \(w'\), such that \(o\) exists in \(w'\) but \(d\) does not refer to \(o\) in \(w'\).

According to (ii), \(d\) fails to refer to \(o\) in \(w'\) in spite of the fact that \(o\) exists in \(w'\). Thus, \(d\) cannot be K-rigid. On the other hand, (i) guarantees that \(d\) be P-rigid. Since definite descriptions refer satisfactionally, the objects referred to by them have to exemplify certain properties. If a description is K-rigid, it has to express a property that is essential for the object referred to by it – the object has to be the unique instance of such an essential property.\(^6\) Now it is easy to see that if a description is required to be P-rigid without being K-rigid, it refers to an object that exemplifies a property that need not be essential for the object, because it might exist without being an instance of the property in question; at the same time, the property has to be such that it cannot be exemplified by any other object.

Consider an example. It necessarily holds that every object is self-identical and cannot be identical with any other object. Given that we have an object, \(o\), there is the property \((\lambda x)(x = o)\) (i.e., the property being identical with \(o\)) that can be exemplified merely by \(o\) itself – it is essential for \(o\). Wherever (and whenever) \(o\) exists, it cannot but exemplify \((\lambda x)(x = o)\). Next suppose that another property \((\lambda x)(Fx)\) is empirical, i.e., it can be exemplified by various objects in different possible worlds – in some worlds \(o\) exemplifies it but in others it does not. We may apply the Boolean operations to the two properties and form ‘compound’ properties, e.g. \((\lambda x)(x = o \& Fx)\). This property can be exemplified exclusively by \(o\) provided \(o\) exemplifies also the empirical property \((\lambda x)(Fx)\). In those possible worlds in which \(o\) exists without being \(F\) it cannot be an instance of \((\lambda x)(x = o \& Fx)\). What we have here is a remarkable property – it is non-essential for all objects, even for \(o\) itself, because all objects (including \(o\)) can exist without exemplifying it, but at the same time it can be exemplified exclusively by \(o\), if at all.\(^7\) Consequently, we have here a general prescription for generating non-essential properties that can be exemplified, if at all, just by one and the same object in all possible worlds. Here are some examples:

- \((\lambda x)(x = \text{Socrates} \& x \text{ is wise})\) (i.e., being both identical with Socrates and wise);
\[ (\lambda x)(x = \text{Plato} \& x \text{ authored 'The Republic')} \] (i.e., \textit{being both identical with Plato and authored 'The Republic'});

\[ (\lambda x)(x = \text{Aristotle} \& x \text{ is Alexander's teacher}) \] (i.e., \textit{being both identical with Aristotle and Alexander's teacher}).

When we replace the \( \lambda \)-operator by the \( \iota \)-operator, we get the following definite descriptions (in this order):

\[ '(\iota x)(x = \text{Socrates} \& x \text{ is wise})' \] (i.e., \textit{the object that is both identical with Socrates and wise});

\[ '(\iota x)(x = \text{Plato} \& x \text{ authored 'The Republic')} \] (i.e., \textit{the object that is both identical with Plato and authored 'The Republic'});

\[ '(\iota x)(x = \text{Aristotle} \& x \text{ is Alexander's teacher})' \] (i.e., \textit{the object that is both identical with Aristotle and Alexander's teacher}).

These descriptions express, as their conditions to be fulfilled by their referents, the above properties that can be exemplified just by one object (if at all). For example, since there is no object that can be both Socrates and wise except for Socrates himself, the description \textit{the object that is both identical with Socrates and wise} may refer to Socrates and no one else; however, it fails to refer to him in those worlds in which he exists without being wise. Thus, this description cannot be K-rigid; on the other hand, it is P-rigid because in all worlds in which it refers to anything at all, it refers to Socrates.

\section*{3 Some Consequences}

Let us say that a property is \textit{essential for a given object} provided the object has to exemplify it whenever and wherever it exists and the property cannot be exemplified by any other object. Let us call a definite description \textit{essentialist} provided its predicate part expresses such a property. Now the notion of K-rigidity can be applied only to such definite descriptions that are essentialist in this sense. If a definite description is to refer to the same object in all worlds in which that object exists, its predicate part has to express a property that is essential for that object. Otherwise there would be a possible world in which this object exists without exemplifying the property in question and without being the referent of the description in question. However, this is forbidden for K-rigid descriptions. The notion of K-rigidity is, thus, closely connected with \textit{essentialism}. On the other hand, the notion of P-rigidity
is free from such a metaphysical precondition. The property expressed by a P-rigid description need not be essential for anything and such a description need not be essentialist.

To be P-rigid, a description has to refer to the same object in all possible worlds in which it refers to something. This obtains also in the case in which it refers to the same object in all worlds in which the object exists and fails to designate anything in all those worlds in which the object does not exist. On the other hand, if a description designates the same object in all worlds in which it refers to something, it may happen that there is at least one possible world in which it refers to nothing but the object in question exists therein. Such a description would be P-rigid without being K-rigid. The notion of P-rigidity is broader than that of K-rigidity because the former notion applies to all those expressions that are K-rigid, but the latter one cannot be applied to some expressions that are P-rigid. Thus, all K-rigid designators are P-rigid as well, but not vice versa.

Next, Kripke used his notion of rigidity to validate the following kind of inference:

\[ d_1 = d_2. \]

‘\(d_1\)’ and ‘\(d_2\)’ are K-rigid designators.

Hence: Necessarily, \(d_1 = d_2\).

If ‘\(d_1\)’ and ‘\(d_2\)’ are definite descriptions, the statement ‘\(d_1 = d_2\)’ is necessary, if true, because the descriptions (qua K-rigid designators) are essentialist. If the properties expressed by the predicate parts of ‘\(d_1\)’ and ‘\(d_2\)’ are necessary for the same object, the identity statement cannot but be true of necessity (if true at all). Now, what happens when the notion of K-rigidity is replaced by that of P-rigidity? The amended inference

\[ d_1 = d_2. \]

‘\(d_1\)’ and ‘\(d_2\)’ are P-rigid designators.

Hence: Necessarily, \(d_1 = d_2\).

is by no means generally valid (provided ‘\(d_1\)’ and ‘\(d_2\)’ are definite descriptions). The reason is that ‘\(d_1\)’ may fail to refer, in some possible worlds, to the object to which ‘\(d_2\)’ does refer in the worlds in question (and vice versa). In fact, there are possible worlds in which one of these descriptions is empty and the other one refers to something. In such
worlds, ‘$d_1 = d_2$’ would not be true and, thus, it cannot be necessarily true (if true at all). Thus, the notion of P-rigidity is not suitable for Kripke’s needs.

It is easy to see that this result is a simple consequence of the fact that the notion of P-rigidity, unlike that of K-rigidity, is rather independent of essentialism. The reason for saying that ‘$d_1 = d_2$’ need not be necessarily true, if true at all, consists in that the properties expressed by the predicate parts of the two descriptions are not essential for anything.

Finally, one may wonder whether there is a simple Kripke-like test that can be used to distinguish P-rigid designators from non-rigid ones. According to Kripke’s test, “$d$” is a K-rigid designator provided the sentence “$d$ might not have been $d$” cannot be true. For example, “the offspring of gametes X and Y” is K-rigid because it is not the case that the offspring of gametes X and Y might not have been the offspring of gametes X and Y. This test is based on the idea that we have to examine the actual referent of a designator as to its modal properties.

It is easy to see that P-rigidity cannot be determined in the same way. The reason is that if “$d$” is supposed to be a P-rigid designator (without being K-rigid at the same time), “$d$ might not have been $d$’ is in fact true; for there is at least one possible world in which the actual referent of “$d$”, though existing in that world, fails to be a referent of “$d$’.

So, are there any other tests available to distinguish P-rigid designators from non-rigid ones? Indeed, there is one. Instead of examining the actual referent of a given designator, we might try to examine all objects other than the actual referent of the designator as to their modal properties. If it appears that none of them can be the designator’s referent in some (non-actual) world (instead of its actual referent), the designator is P-rigid. Thus, “$d$’ is a P-rigid designator provided the sentence “something other than $d$ might have been $d$’ cannot be true. Observe that the first occurrence of “$d$’ has wider scope over “might” while the second occurrence has a narrow scope. For example, “the individual that is both identical to Socrates and wise” is P-rigid (without being K-rigid) because it is not the case that something other than the actual individual that is both identical to Socrates and wise might be both identical to Socrates and wise.
Notes

1 The terms ‘reference’ and ‘designation’ (and their verb forms) are used interchangeably throughout the paper.

2 If \((\lambda x)(Fx)\) is instantiated by two or more objects, then nothing is a unique instance of this property; the description designates, or refers to, nothing at all in such a case.

3 It is sometimes assumed that the reference relation for definite descriptions is a four-place one with time as a fourth argument. I ignore this complication throughout the paper.

4 I have no space to discuss baptisms in a more detailed manner. Let me give just a simple (and simplistic) characterization: Given that there is an object to be baptized, \(o\), an expression that is to be attached to \(o\) as its proper name, \(n\), and another device, \(d\), identifying \(o\) for the baptizer, \(b\) (\(d\) might be another expression already referring to \(o\), or a pointing gesture toward \(o\), or anything else that enables \(b\) to identify \(o\), \(b\) decides that \(o\) identified for her by \(d\) is henceforth named \(n\). If the act of baptism was successful, a linguistic convention associating \(n\) with \(o\) has been established.

5 Famously, this fact was highlighted by David Kaplan in his discussion concerning the referential behaviour of the name ‘Quine’ in those worlds in which Quine does not exist; (cf. [3, p. 503]). On the other hand, Ruth Barcan Marcus admits that a proper name does not refer to anything in those worlds in which its referent does not exist; (cf. [5, p. 61].

6 There are various notions of essential property on the market. When we work within the possible world semantics framework, we are allowed to say that a property, \(P\), is essential provided for all objects, \(x\), and for all possible worlds, \(w\), it holds that \(x\) instantiates \(P\) in \(w\) iff \(x\) exists in \(w\). The properties I take to be essential in the main text are a limiting case satisfying this definition. For they are specific in that they can be instantiated just by a single object in all possible worlds in which they are instantiated at all and, at the same time, the object in question has to instantiate them wherever it exists. For example, the properties being human or being self-identical, though essential according to the above definition, do not fall within this limited category because they can be instantiated by various objects. On the other hand, being identical with Plato is an example of such a property. So, when I talk about essential properties I have in mind properties of this limited sort. This fact becomes crucial in Section 3. I am indebted to Kathrin Glüer-Pagin and Peter Pagin for discussion on essential properties.

7 There is also another interesting property that is ‘composed’ of the two ones: it is the property \((\lambda x)(x = o \vee Fx)\). It can be exemplified (in a given possible world) either by \(o\) (and this holds in all worlds in which \(o\) exists) or by any individual that is \(F\) (in that possible world). It can be exemplified by more objects in some possible worlds. What is striking is that it is essential for \(o\) but for any other object it is non-essential (empirical). It is an example of an empirical essential property; such properties were thoroughly studied in [1].

8 It is understandable that the philosophers who work in the Kripkean framework are not willing to admit as rigid those designators that are merely P-rigid. Christopher Hughes suggests distinguishing rigid designators from inflexible ones; an inflexible designator ‘couldn’t have referred to anything different from the
Hughes’ example of an inflexible designator is ‘the father of Abel’ – which was originally used by Colin McGinn in [6] – that refers to Adam in all possible worlds apart from those in which either Adam did not exist or he remained childless; thus, it would be a P-rigid designator. Hughes would say that P-rigid designators are merely inflexible. Analogously, Scott Soames in his discussion about partially descriptive names is explicit about the idea that expressions such as ‘Princeton University’ are by no means rigid because he identifies rigidity with what is called here K-rigidity; (cf. [8, p.52]). Anyway, the surrounding discussion implies that ‘Princeton University’ would be P-rigid.

9 I am grateful to Ilhan Inan who came up with the following test of P-rigidity.

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