

Does Rigid Designation Justify Necessity?

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1. Introduction

In the first two lectures of *Naming and Necessity* – henceforth (1980) – Kripke primarily deals with proper names, while in the third he pays particular attention to natural kind terms, in which one of his main aims is to allege the existence of certain *similarities* between those terms and proper names. According to Kripke, one of the similarities between natural kind terms and proper names is that both sorts of expressions appear in identity statements that, if true, are necessary – although they're *a posteriori* true. Kripke calls this type of identity statements containing natural kind terms “theoretical identifications” and sometimes “theoretical identities”; I'll opt for the second denomination. Those types of statements concerning natural kinds will express structural properties of the members of the kind whose discovery is the object of scientific

investigation. Kripke exemplifies them by the statements “Water is H₂O” and “Gold is the element with the atomic number 79”. Nevertheless, Kripke claims that this similarity follows from another one, namely from a linguistic feature shared by proper names and natural kind terms consisting in that both sorts of expressions are *rigid designators*. Concerning theoretical identities he asserts:

“Theoretical identities, according to the conception I advocate, are [...] identities involving two rigid designators and *therefore* are examples of the necessary *a posteriori*.”
(Kripke 1980: 140; first emphasis added).

Regarding an example of theoretical identity he claims in his article “Identity and Necessity” – henceforth (1971) – that “[...] since we have two rigid designators, the identity statement in question is necessary [if true]” (1971: 162).

Kripke assumes that the natural kind terms flanking the identity sign in such statements are rigid designators and that theoretical identities are true –

false identity statements cannot be necessary. Such claims would provide the justification of the *necessity* for theoretical identities.

There are at least three ways in which theoretical identities have been understood. According to one interpretation, theoretical identities are identity statements but natural kind terms – and terms for natural phenomena – are conceived as *singular terms* (and simple natural kind terms as proper names). This interpretation, proposed in LaPorte (2013), conflicts with Kripke's assertion that natural kind terms are general terms. Following another interpretation, especially taking Soames (2002) as a starting point, it's claimed that natural kind terms have to be understood as *predicates* and that theoretical identities aren't identity statements, but statements that have the form of *universally quantified* conditionals or biconditionals. According to a different interpretation, and as Kripke claimed, theoretical identities are *identity statements* and natural kind terms are *general terms*. I'll mainly focus

on the last interpretation, although I'll take into consideration features involved in the second one for two reasons. First, I'll assume that the necessity of theoretical identities as understood in the third way is linked to the necessity of them conceived in the second way. Indeed Kripke occasionally mentions universally quantified biconditionals corresponding to theoretical identities understood as identity statements and he claims about them that "the coextensiveness of the predicates is *necessary*, but not *a priori*" (1980: 138). Second, the condition of identity for natural kinds that I'll propose below has the form of a biconditional, but it could be easily reformulated as having the form of a universally quantified biconditional. However, for the following it's important to emphasize that Kripke regards theoretical identities as *identity statements*. Thus, he asserts concerning theoretical identities that they're a "type of identity statement, which comes from scientific theory" (1980: 98).

Once assumed Kripke's view of theoretical identities, according to which these are identity statements containing the type of general terms that natural kind terms are, the aim of my lecture is twofold. Firstly, I'll contend that the thesis can be held that natural kind terms are rigid designators, whose referents are universals. Secondly, I'll argue that the conception of natural kind terms as rigid designators of universals hinders the establishment of the truth of theoretical identities and hence of their necessity.

2. Kripke's Framework

It's appropriate to start with some remarks about the framework within which Kripke puts forward the thesis that natural kind terms are rigid designators.

In the first lecture of (1980) Kripke introduces the term *designator* as a common denomination for proper names and definite descriptions, the two types of *singular terms* he takes into consideration. The definition of a rigid designator or rigid designation or, for short, rigidity is found in the first and second lectures and thus it's introduced *before* Kripke focuses

on natural kind terms. Since Kripke claims that natural kind terms are, like proper names, rigid designators, but he doesn't provide an *explicit* definition of rigid designation for natural kind terms, it must be assumed that the definition of rigidity for such terms will be an *extension* of the one proposed for singular terms.

The definition of rigid designation contained in the first edition of *Naming and Necessity* – published in 1972 – and in (1971) can give rise to different characterizations. This ambiguity led David Kaplan to write to Kripke asking him for a clarification of that notion. In his answer, Kripke affirms that the notion of a rigid designator (for singular terms) intended by him is the following:

“[A] designator *d* of an object *x* is *rigid*, if it designates *x* with respect to all possible worlds where *x* exists, and *never designates an object other than x with respect to any possible world.*” (Quoted in Kaplan 1989: 569).

Although there are different conceptions concerning possible worlds, I'll assume Kripke's view, according to which a *possible world* is a way in which we could imagine that the actual world is different from the way it is. An important feature of Kripke's view on possible worlds is that they aren't discovered, but stipulated, since "a possible world is *given by the descriptive conditions we associate with it.*" (1980: 44).

Kripke's definition of rigidity for singular terms leaves two options open. The first is that a rigid designator designates the same object with respect to every possible world – whether the object exists therein or not –, while according to the second, it designates the same object with respect to every possible world in which the object exists and has no reference with respect to every other possible world. Following a usual terminology, initially proposed in Salmon (1981), rigid designators satisfying the first characterization are *obstinate* designators, while

those fulfilling the second one are *persistent* designators.

Albeit Kripke prefers to leave the corresponding double alternative open so as not to get involved in questions arising from the possible non-existence of an object, the definition of rigid designation applicable to proper names actually intended by Kripke is the first one, because in the Preface to the enlarged version of *Naming and Necessity* (Kripke 1980) he asserts that he considers proper names as rigid *de jure*. A designator is rigid *de jure* if at fixing its reference it's *stipulated* that its referent is the same independently of whether we're speaking of the actual world or of a possible world different from it. Thus, rigid *de jure* designators are, in Salmon's terminology, obstinate designators.

Although most definite descriptions are *non-rigid designators*, Kripke acknowledges that some definite descriptions are rigid; they aren't yet rigid *de jure* but rigid *de facto*. In the case of a rigid *de facto* designator it isn't stipulated that there's one object that is its

referent with respect to all possible worlds, but the predicate contained in the description applies to the same object “in each possible world” (Kripke 1980: 21, n. 21), i.e., in *every possible world*. Nonetheless, I find it convenient to modify this characterization of rigidity *de facto* in two senses.

Firstly, it's suitable to leave open the alternative that the predicate or general term with which the description has been built applies to the same object with respect to every possible world *or* only with respect to every possible world where the object exists, having no reference with respect to every other possible world, i.e., the alternative that rigid *de facto* designators are persistent or obstinate. A reason for that modification is that definite descriptions made rigid by means of the *actuality* operator, like “The actual writer of *Hamlet*”, are usually understood as designating its referent only with respect to every possible world where the individual or object exists, and as having no referent with respect to the other

possible worlds. Hence, I'll assume that rigid *de facto* designators can be obstinate or persistent.

The second modification I'll introduce in the characterization of rigid *de facto* designation is that, although rigid *de facto* designators are a sort of description, I'll extend this notion of rigidity to the *general terms* with which those descriptions have been built, since, as already indicated, according to Kripke natural kind terms are a type of general term. In this regard it's appropriate to make a remark about the second member of the theoretical identities mentioned above. According to the most natural interpretation of "H₂O", this expression is (the abbreviation of) a definite description, that is, the description "The substance (or chemical compound) (instances of which are) made out of molecules consisting of two hydrogen atoms and one oxygen atom", or a similar one. However, if the term "H₂O" is being considered as a natural kind term and hence, according to Kripke, as a *general term*, that term will have to be understood as the general term obtained

from the description by deleting the article “the” – the same consideration applies to the description used by Kripke concerning the term “gold”, i.e., “The element with atomic number 79”.

Returning to proper names, a consequence of the rigidity of proper names is that true identity statements involving two proper names are *necessary*, i.e., true with respect to every possible world. One of the most famous examples is the identity statement “Hesperus is Phosphorus”. This statement is true, since the names “Hesperus” and “Phosphorus” designate the same object, namely the planet Venus, but since proper names are rigid *de jure* and hence obstinate designators, those names will designate the planet Venus with respect to every possible world, from which it follows that the statement “Hesperus is Phosphorus” is necessary. However, it was an empirical discovery that these proper names designate the same object; therefore, the statement “Hesperus is Phosphorus” is, though necessary, a *posteriori* true. Thus, the rigidity of proper names

makes it possible to justify the necessity of the true identity statements containing proper names.

Having reached this point, I should undertake two tasks in the next section. First, to propose a definition of rigid designation for *natural kind terms* in accordance with Kripke's definition for singular terms. Second, to put forward a view of *natural kinds* that agrees as much as possible with the few remarks Kripke makes about them. Both tasks are necessary to determine whether Kripke's claim that natural kind terms are rigid designators is acceptable.

3. Natural Kind Terms as Rigid Designators

Regarding the first task, we must bear in mind the definition of rigid designation for singular terms put forward by Kripke in his answer to Kaplan. Since in the third lecture of *Naming and Necessity* he extends the notion of a rigid designator to natural kind terms, I'll extend that definition to natural kind terms or, more generally, to kind terms. The most literal extension, and the only one I'll take as a basis for my considerations, is the following:

A designator *d* of a kind *k* is *rigid*, if it designates *k* with respect to all possible worlds where *k* exists, and *never designates a kind other than k with respect to any possible world*.

As occurs with the definition of rigid designation for singular terms, the characterization of rigidity for kind terms I've proposed leaves *two* options open for natural kind terms, namely that they designate the same kind with respect to every possible world *or* that they designate the same kind only with respect to every possible world where the kind exists, having no reference with respect to every other world. Thus, natural kind terms, like rigid singular terms, can be *obstinate* or *persistent* designators.

Regarding the second issue, that is, the one consisting of putting forward a view of natural kinds that agrees as much as possible with the few remarks Kripke makes about them, it's pertinent to point out that he characterizes the relationship between a natural kind and the entities of the kind as a relationship of *instantiation* (1980: 135-136), which

suggests that he conceives a natural kind as a type of universal instantiated in particular entities, although he does *not* give any further details concerning the ontological status of natural kinds.

Nonetheless, taking into account the definition of rigid designation for kind terms put forward above, I should make a proposal regarding the conditions in which a kind and especially a natural kind exists in a possible world. Although Kripke hasn't been very explicit in this regard, a position that is *partially* based on some assertions by him and that I'll assume in the following is that a natural kind exists in a possible world if and only if that possible world contains instances of the kind. Thus, the claims about the existence of a natural kind in a possible world are *derived* from those concerning the existence of instances of the kind in that world. In this respect, I'll adopt two further *assumptions*. On the one hand, I'll assume the following *condition* for the identity of natural kinds: two natural kinds are identical if and only if the instances of each kind are the same in all

possible worlds. This formulation allows for a relative condition of identity: two natural kinds are identical in a world if and only if their instances are the same in that world.

On the other hand, since the instances of natural kinds aren't necessarily existent entities, because we can stipulate possible worlds where there aren't such instances, the existence of natural kinds won't be necessary either, but *contingent*. Thus, I'll assume that those universals that are natural kinds don't necessarily exist, i.e., there'll be possible worlds where a natural kind doesn't exist, that is, those where there are no instances of it. Therefore, concerning those possible worlds the natural kind term will have no reference.

The view of natural kinds as certain universals, like substances and species, – instantiated in particular entities – is the predominant view at present among the authors who accept the thesis that natural kind terms are rigid designators. This view allows us to maintain that natural kind terms are

rigid designators, according to the definition of rigid designation for these terms and in general for kind terms proposed above, since the universals designated by natural kind terms – natural kinds – will be the *same* with respect to every possible world or at least with respect to every possible world where such kinds exist, i.e., with respect to every possible world that contains instances of such kinds, in accordance with our aforementioned proposal concerning the conditions under which a kind exists in a possible world.

4. Rigidity and the Truth and Necessity of Theoretical Identities

However, if one accepts the distinction mentioned above between rigid *de jure* and rigid *de facto*, the two examples of theoretical identities given above, i.e., “Water is H₂O” and “Gold is the element with the atomic number 79”, will contain a rigid *de jure* designator and a rigid *de facto* one, and while all designators of the first sort are obstinate, those of the second sort can be obstinate or persistent.

Nonetheless, identities containing the latter sort of rigid designators can't be necessary in the strict sense, i.e., true with respect to all possible worlds.

Nevertheless, with regard to natural kind terms Kripke hasn't taken into consideration the distinction between *de jure* rigid designators and *de facto* rigid designators, but he *simply* alludes to natural kind terms as rigid designators. Therefore, I'll follow the same procedure. In this regard, I'll centre my considerations on the first example of theoretical identity mentioned, i.e., the statement "Water is H₂O", since similar remarks would apply to the theoretical identity involving the term "gold".

However, a previous comment is appropriate. As mentioned earlier, Kripke occasionally mentions the universal quantified biconditional form corresponding to theoretical identities, but he never labels such universal quantified statements *theoretical identities*. Nonetheless, given our proposal concerning the *condition* for the identity of natural kinds, according to which two natural kinds are identical if and only if the

instances of each kind are the same in all possible worlds, in order to establish the truth of theoretical identities, which in accordance with Kripke have the form of identity statements, we have to resort to the extension of the respective natural kind terms in all possible worlds, since the set of instances of a kind is the extension of the kind term in question. And that claim about extensions would have the form of a universal quantified biconditional.

Notwithstanding, since theoretical identities are according to Kripke identity statements, the statement “Water is H₂O” is conceived by him as an *identity statement* in which the identity sign is flanked by the general terms “water” and “H₂O”. Following the pattern of the identity statement “Hesperus is Phosphorus”, it could be alleged that, since the terms “water” and “H₂O” are rigid designators, if the identity statement “Water is H₂O” is *true*, it’ll also be *necessary*, that is, it’ll be necessary if true, as Kripke claims. Nonetheless, these identity statements are

dissimilar as far as the establishment of their truth is concerned.

In the case of the statement “Hesperus is Phosphorus”, and in general of identity statements that contain two proper names, in order to establish their truth and hence their necessity, we only need – assumed the rigidity of proper names – to take into account the *actual world* and ascertain whether the entity designated by both names in the actual world is the same. Nevertheless, according to our proposed necessary condition for the identity of natural kinds, which is reasonable, in order to establish the truth of a theoretical identity like “Water is H₂O” *all possible worlds* are involved in the sense that this statement will be true if and only if the instances of water and of H₂O, i.e., the extensions of the corresponding terms, are the same in all possible worlds, not only in the actual world.

As already indicated, I’ve adopted a view of natural kinds, and therefore of substances, according to which the substances (natural kinds) water and

H₂O are universals – this makes it possible for the corresponding natural kind terms to be rigid designators. Thus, the statement “Water is H₂O” will be *true* if and only if the substances water and H₂O are identical. However, according to the condition for the identity of natural kinds and hence of substances proposed above, this will hold if and only if the instances of both substances are the same in all possible worlds, i.e., only if the terms “water” and “H₂O” are coextensive in all of them. Notwithstanding, even if we concede that the extension of those terms is the same in the actual world – which would have been established *a posteriori* – we can’t take into consideration every and each possible world to ascertain whether the instances of the substances designated by those two terms are the same in all possible worlds, i.e., whether those terms are coextensive in all of them. Furthermore, from the rigidity of the terms “water” and “H₂O” and their coextensiveness in the actual world it doesn’t follow their *coextensiveness* in *all possible worlds*, which is

the condition to be satisfied for the truth – and the necessity – of the statement “Water is H₂O”.

This can be illustrated in the following way. Let’s take into account a sample of water that doesn’t exist in the actual world, but does exist in a *non-actual world*. From the rigidity of the terms “water” and “H₂O” and their coextensiveness in the actual world it does *not* follow that the said sample will also be an instance of H₂O. Thus, the rigidity of the terms “water” and “H₂O” together with their coextensiveness in the actual world aren’t sufficient to establish that the instances of the substances designated by those terms are the same in all possible worlds, and therefore that the statement “Water is H₂O” is true. Consequently, since we have no justification to accept the *truth* of that statement, we have no reason to admit its *necessity* either.

In other words, even if we accept that the terms “water” and “H₂O” are rigid designators and that the extension of those terms is the same in the actual world, this doesn’t lead to the conclusion that their

referents – the universals designated by them – are identical, i.e., that the theoretical identity “Water is H₂O”, conceived as expressing an identity between substances (universals), is true, although if it were true, it would also be necessary.

The conclusion to be drawn from the foregoing considerations is that, although it can be held that natural kind terms are *rigid designators*, the view of natural kinds as *universals*, which allows for natural kind terms to be rigid designators, hinders the establishment of the *truth* of theoretical identities, and given their truth, of their *necessity*.

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