

A Puzzle about Rigid Designation

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ABSTRACT: Proper names are usually supposed to be rigid *de jure*. Given this claim and some other usual assumptions—namely that properties are explicated as intensions of a sort and that various possible worlds have various universes—one may derive the following inconsistent pair of conclusions: (i) for all properties *P* and for all possible worlds *w* it holds that an object, *o*, exemplifies *P* with respect to *w* only if *o* exists in *w*; and (ii) there is at least one property *P* and at least one possible world *w* such that *o* exemplifies *P* with respect to *w* even though *o* fails to exist in *w*. The aim of the present paper is to show how the problematic pair of conclusions is derived, spell out its background (most notably the idea of rigidity *de jure*) and review possible ways out.

KEYWORDS: Intension – linguistic convention – possible world – proper name – rigid designation – rigidity *de jure*.

*To Petr Kotátka,
a close friend, witty companion
and excellent philosopher*

1. Introduction

Possible worlds are a powerful theoretical tool widely employed in the current philosophy of language. They can be used to show, for example,

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that certain kinds of singular terms are *rigid designators*; an expression is supposed to be rigid provided it designates the same object with respect to all possible worlds (in which the expression designates something or in which the object in question exists).² This holds, primarily, for all (or almost all) proper names and some definite descriptions.³ Since the ways proper names and definite descriptions designate the targeted objects are widely different, one may expect they are rigid in different senses—definite descriptions are usually said to be rigid *de facto* while proper names are supposed to be rigid *de jure*.⁴

Now despite being well motivated, the possible world apparatus together with the idea of proper names as rigid *de jure* may be used to derive a pair of problematic conclusions. More specifically, if (i) proper names are rigid *de jure*, (ii) properties are exemplified by objects relative to possible worlds only, and (iii) different possible worlds assume different universes, i.e. sets of objects inhabiting the worlds, then it could be inferred both (iv) that for all properties *P* and for all possible worlds *w* it holds that an object, *o*, exemplifies *P* with respect to *w* only if *o* exists in *w* and (v) that there is at least one property *P* and at least one possible world *w* such that *o* exemplifies *P* with respect to *w* even though *o* fails to exist in *w*. Obviously,

² It is often admitted that some general terms are rigid designators as well (cf., for example, Kripke 1980, Ch. 3; Putnam 1975). There are numerous papers and books dealing with general terms and their rigidity, some of the most interesting ones being Devitt (2005), Gómez-Torrente (2006), LaPorte (2004; 2013), Martí (2004), Soames (2002). However, it is by no means settled which kinds of general terms could be rigid and in which sense they could be said to be rigid. I tried to disentangle these problems in Zouhar (2009). As for now, however, I deal merely with rigid designation as applied to singular terms, leaving general terms aside.

³ The bracketed qualification concerning proper names is in place provided one is willing to make room for some special kinds of proper names. It could be claimed, for example, that the so-called descriptive names *à la* G. Evans' 'Julius' (cf. Evans 1982, 31) are non-rigid. (This is not to say, of course, that Evans himself would take them as non-rigid; in fact, descriptive names were rigid for him (cf. Evans 1982, 60-61).) Anyway, since rather marginal with respect to the present paper, I shall ignore complications of this kind throughout the paper. I shall ignore also complications brought about by the names of non-existent entities such as 'Vulcan' (*qua* a name of the purported intra-mercurial planet) as well as the names of fictional entities, whatever they are, such as 'Sherlock Holmes'.

⁴ This distinction has been introduced by S. Kripke in Kripke (1980, 21).

claims (iv) and (v), though both resulting from apparently unproblematic assumptions, are mutually incompatible.

I try to show how the widespread and more or less acceptable assumptions (i)–(iii) bring about the apparently unacceptable pair of conclusions (iv) and (v). In Sections 2–4, I set the stage by introducing the relevant ideas concerning possible worlds, proper names and rigid designation. Section 5 presents, in some detail, the two lines of reasoning leading to the problematic conclusions. Finally, possible ways out are outlined in Section 6.

2. A possible world framework

Possible worlds are often taken to be an effective tool for representing a wide variety of semantic as well as metaphysical features of natural languages. To select just some examples at random, they can be used to explain the truth-conditions of modal sentences such as ‘It is necessary that p ’ or ‘It is possible that p ’, where p is an indicative sentence of a given language; they can be used to explain the truth-conditions of counterfactual conditional sentences; they can be used to explain why certain sentences are merely contingently true while some other sentences are necessarily true. And most importantly for us, they are used to explain why certain singular expressions designate objects rigidly and some other ones designate them non-rigidly.

Possible worlds can be understood as maximal and consistent collections of states-of-affairs. There are various kinds of states-of-affairs, the most notable ones being those in which an object exemplifies a property or those in which a tuple of objects exemplifies an n -ary relation. The first kind of states-of-affairs can be described by the sentences of the form ‘ α is Φ ’, where α is a singular term and Φ is a predicate expressing a property, while the second kind of states-of-affairs can be described by the sentences of the form ‘ β_1, \dots, β_n are Ψ ’, where β_1, \dots, β_n are singular terms and Ψ is a predicate expressing an n -ary relation.⁵ A collection of states-of-affairs is max-

⁵ I take ‘ β_1, \dots, β_n are Ψ ’ to be a form instantiated by sentences such as ‘Bill and Bob are brothers’ or ‘Bill is taller than Bob’ rather than by sentences such as ‘Bill and Bob are bachelors’ or ‘Bill and Bob are tall’ (the latter being, instead, sentences of the form ‘ β_1 is Φ and β_2 is Φ ’).

imal provided for every object and for every property it is specified whether the object exemplifies the property or not and for every tuple of objects and for every n -ary relation it is specified whether the tuple of objects exemplifies the relation in question or not. A collection of states-of-affairs is consistent provided it does not involve a state-of-affairs according to which an object exemplifies a property (or a tuple of objects exemplifies an n -ary relation) together with a state-of-affairs according to which the object in question does not exemplify the property in question (or the tuple in question does not exemplify the n -ary relation in question).

Within the possible world framework, properties and relations are nicely explicated as intensions, i.e. functions mapping possible worlds to extensions; properties are explicated as (total) functions mapping possible worlds to sets of objects while relations are explicated as (total) function mapping possible worlds to sets of tuples of objects.⁶ As a result, objects are allowed to exemplify properties in possible worlds only; the same holds for tuples of objects exemplifying relations. In fact, exemplifying a property (or an n -ary relation) in a given possible world is the same as being a member of the set of objects (or the set of tuples of objects) that is assigned to the possible world by the property (the n -ary relation). It makes no sense to say that an object exemplifies a property, or that a tuple of objects exemplifies a relation, independently of any possible world whatsoever.

The set of all objects inhabiting a possible world is a universe. If the idea of a constant universe across all possible worlds is adopted, then an object exists in one possible world if, and only if, it exists in all possible worlds as well. Alternatively, universes can be construed as variable; for every possible world there is a universe such that different possible worlds assume different universes. In such a case, if an object exists in one possible world, it need not exist in all possible worlds. The philosophers who study natural languages in terms of possible world semantics often opt for variable universes (cf., for example, Smith 1987, 84). This enables them to admit that a speaker may truly assert about a particular object o that o does not exist in a certain possible world; it enables them also to admit that a speak-

⁶ If there is no object exemplifying a certain property in a given possible world or if there is no tuple of objects exemplifying a certain n -ary relation in a given world, then the respective functions assign the empty set to such a world.

er may assert of o that o exists in a certain possible world without saying that the assertion is utterly trivial.⁷

In what follows, it is unnecessary to assume a particular version of the possible world semantics. What we need is just the general view about properties as intensions and the assumption of different universes for different possible worlds. This gives us claims (ii) and (iii) mentioned in Section 1 as premises of the inferences leading to the problematic pair of conclusions (iv) and (v). It remains to flesh out the claim (i); this is done in Sections 3 and 4.

3. Rigid designation

To begin with, let us introduce the notion of rigid designation. There are several definitions of rigid designation on the market; some of them are equivalent in that they depict the same notion of rigidity while other definitions are non-equivalent because there are slight, though in effect substantial, differences between the respective notions defined.

The core idea common for all definitions of rigid designation can be captured in the following partially negative manner:

An expression, ε , is a rigid designator if, and only if, (i) there is an object o and a possible world w such that ε designates o with respect to w and (ii) there are no objects o and o' (where $o \neq o'$) and no possible worlds w and w' (where $w \neq w'$) such that a) ε designates o with respect to w , and b) ε designates o' with respect to w' .

The condition (i) guarantees that ε designates something, i.e. that it is a designator. The condition (ii) is essential for rigidity—if an expression fails to satisfy this condition (while satisfying the condition (i)) it is a non-rigid designator. This definition of rigid designation is neutral in that the

⁷ If the idea of the constant universe is adopted, one may say that an object does not exist only in the sense that there is no object in the universe exemplifying a certain property. As a result, when one wants to say truly that Bill does not exist in a particular world, one has to mean, at most, that the world in question is not inhabited by an object uniquely exemplifying a certain property. There is no way how a person might truly say of a particular object o she has in mind that this very object does not exist in a certain possible world (or in any other possible world, for that matter).

core idea given in the negative condition (ii) is consistent with all positive formulations one may dig out in the literature. There are at least two possibilities how to flesh this idea out:

An expression, ε , is a rigid designator if, and only if, there is an object o such that (i) there is a possible world w with respect to which ε designates o and (ii) for any possible world w' it holds that if o exists in w' , then ε designates o with respect to w' .⁸

An expression, ε , is a rigid designator if, and only if, there is an object o such that (i) there is a possible world w with respect to which ε designates o and (ii) for any possible world w' it holds that if ε designates anything with respect w' , then ε designates o with respect to w' .⁹

Though closely connected, the two definitions are non-equivalent and the notions of rigidity defined therein are different.¹⁰ Since the former definition is usually employed in the literature, I will stick to it in what follows.¹¹

There is one question that pops immediately into one's mind: What happens with respect to those worlds in which the object rigidly designated by the expression fails to exist? The most natural response seems to be that the expression designates nothing with respect to such worlds. For, being

⁸ This is my restatement of Kripke's claim that "a designator rigidly designates a certain object if it designates that object wherever the object exists" (Kripke 1980, 48-49); for an alternative formulation of the same idea see also some of the numerous works by S. Soames devoted to reference, e.g., Soames (2002, 4; 2006, 16).

⁹ This is my restatement of H. Putnam's claim that a designator is called "rigid" (in a given sentence) if (in that sentence) it refers to the same individual in every possible world in which that designator designates" (Putnam 1975, 231). Obviously, the conditional "if ε designates anything with respect w' , then ε designates o with respect to w' " could be strengthened to the biconditional " ε designates anything with respect w' if, and only if, ε designates o with respect to w' ". Anyway, I consider the simpler version in the main text.

¹⁰ Without going into details I just hint that some expressions are rigid according to the latter definition without being such according to the former definition. For more about the differences between the two notions of rigidity see Zouhar (2012).

¹¹ The choice between the two definitions is inessential for our purposes because proper names remain rigid *de jure* whichever definition is considered. As a result, the line of reasoning leading to the pair of inconsistent conclusions outlined in Section 1 (and further elaborated in Section 5) is independent of a definition selected.

a rigid designator, the expression cannot designate anything else. And since the object in question does not exist in such worlds, there is nothing with which the expression could enter the designation relation. As a result, the expression should be expected to designate nothing with respect to such possible worlds.

This reply seems to be fully satisfactory in the case of definite descriptions. Obviously, a definite description ‘the Φ ’ designates an object o with respect to a given possible world w only provided o satisfies, with respect to w , the descriptive condition expressed by ‘the Φ ’; o may satisfy the descriptive condition with respect to w only provided o *uniquely* exemplifies, in w , the property expressed by the predicate part ‘ Φ ’ of the description ‘the Φ ’. As a result, ‘the Φ ’ is a rigid designator only provided the descriptive condition expressed by ‘the Φ ’ is satisfied by the same individual, namely o , with respect to all possible worlds relative to which the descriptive condition is satisfied by anything. In other words, being a rigid designator, ‘the Φ ’ uniquely describes o with respect to all possible worlds in which o exists and fails to describe uniquely anything with respect to those possible worlds in which o does not exist. And since nothing satisfies the descriptive condition expressed by ‘the Φ ’ relative to those worlds, ‘the Φ ’ does not designate anything with respect to them. Kripke introduced the term ‘rigidity *de facto*’ to name this kind of rigid designation.¹²

¹² Obviously, I assume that definite descriptions (as well as some other expressions) are allowed to designate, or to refer to, something. This seems to contradict the view according to which expressions cannot be properly said to refer to, or designate, anything; it is only speakers who can be said to refer to, or designate, something by uttering expressions. This view has been forcefully presented by those inspired by Strawson’s (1950) criticism of Russell’s theory of descriptions; cf., in particular, Linsky (1963), Searle (1969) as well as Kotátko (1993; 1995; 2009) and his numerous works written in Czech (including the 2006 book). Of course, I do not wish to claim that definite descriptions are capable of performing referential speech acts. Anyway, this fact need not prevent us from assuming another notion of reference (called “designation” in this paper) as depicting a relation between expressions and extra-linguistic entities; the relational notion of reference, i.e., designation, differs from the speech act notion of reference (or, better, referring). In the case of definite descriptions, an expression designates some object with respect to a possible world only if the object satisfies, in that world, the descriptive condition expressed by the description; this relation holds independently of all acts of referring anyone might carry out by uttering the description. See, e.g., Kalstrup (2012, 11ff.) for a recent employment of the relational notion of reference.

It is easy to see that a definite description may rigidly designate something with respect to all possible worlds without exception only provided the object designated exists in all possible worlds.¹³ Such an object would be a necessary existing object. Typical examples abundant in the literature involve descriptions designating mathematical entities such as ‘the sum of 2 and 3’ or ‘the even prime number’.¹⁴ However, this is debatable because numbers and mathematical entities in general cannot be properly said to exist in possible worlds; they are, rather, altogether independent of all possible worlds. As a result, it is highly contentious to claim that ‘the sum of 2 and 3’ designates 5 *with respect to* some possible world or other. One should better say that mathematical descriptions designate entities *independently* of possible worlds. Since the notion of rigid designation has been introduced in terms of possible worlds, one should also better abandon the idea that mathematical descriptions are rigid designators. In short, this conceptual apparatus is not designed to capture expressions designating entities which are not ordinary objects, i.e. members of the universe.¹⁵

So, putting these purported examples aside it is debatable whether there really are definite descriptions that would rigidly designate something with respect to all possible worlds. If objects are understood in their mundane

¹³ In Kripke’s terms, such a designator is *strongly rigid*; cf. Kripke (1980, 48).

¹⁴ See, for example, Kripke (2011a, 9) where he discusses the definite description ‘the square root of 25’ as an example.

¹⁵ Of course, one might attempt to introduce another notion of rigid designation which could be used to show that mathematical descriptions are rigid designators after all. We might assume that there is (in some sense of ‘is’) the “world of numbers” consisting of “arithmetical states-of-affairs” and that mathematical descriptions designate “inhabitants” of this “world”. If this is the case, however, mathematical descriptions would be rigid in a fairly trivial sense. The reason is that there is just one such “world”, i.e. there are no possible alternatives to this single “world of numbers”. (The “world of numbers” should not be confused with the various arithmetic systems—the systems are just representations of the single “world”.) Consequently, it makes no sense to mull over what would happen had things been different with the “world of numbers”. Obviously, there is also no way how to effectively differentiate rigid mathematical descriptions from non-rigid ones (there are none such expressions) and, thus, the very notion of rigidity appears to be useless in this realm. Anyway, if someone wants to retain the notion of rigid designation for mathematical expressions as well, she has to bear in mind that this would be a *different* notion completely dissociated from the one defined in terms of possible worlds. Be that as it may, in our present sense, mathematical descriptions are not rigid designators; they are not, however, non-rigid designators either.

sense, we should, perhaps, respond in the negative. Thus, we might take it as a plausible hypothesis that for rigidly designating definite descriptions it holds that there are possible worlds with respect to which the descriptions designate the same individual as well as possible worlds with respect to which they fail to designate anything at all.

4. Proper names and rigidity

Now let us turn to proper names. They are usually supposed to be paradigmatic examples of rigidly designating expressions. Concerning designation, however, proper names are quite dissimilar from definite descriptions. The main semantic differences between proper names and definite descriptions stem from the simple fact that proper names designate objects in a completely different fashion than definite descriptions. While definite descriptions, if rigid, are rigid *de facto*, proper names are—to use Kripke's locution again—rigid *de jure* meaning that “the reference of a designator is *stipulated* to be a single object, whether we are speaking of the actual world or of a counterfactual situation” (Kripke 1980, 21).

Now, how it happens that proper names are rigid *de jure*? Since his remarks on rigidity *de jure* are very sketchy, Kripke offers no direct response to such question. Anyway, it is easy to devise one on the basis of his overall theory of proper names.

Proper names are usually introduced into the language by certain baptismal acts in which depicted objects are assigned linguistic items as their appellations.¹⁶ When an object is assigned a linguistic item as its proper

¹⁶ To my knowledge, the most thorough considerations concerning baptisms can be found in M. Devitt's earlier book Devitt (1981). Though the term ‘baptism’ might suggest that introducing a name into language is a rather formal and ceremonious procedure, in many cases it is by no means so. Name introduction is often very informal; sometimes a name simply takes hold somehow in the community of speakers (cf. nicknames, for example). Anyway, we may imagine, as a highly idealized situation, that an act of baptism follows certain rules; retrospectively, we might simulate there being an act of baptism for virtually every proper name. Be that as it may, nothing of importance in this paper rests on how baptisms are modeled.

What is important is that proper names designate their bearers on a conventional basis, as claimed below in the main text. Even the picture of baptismal acts as giving raise to certain kinds of linguistic conventions might be, however, taken as highly idealized and simplified. I do not doubt it. There are long-running discussions concerning

name, a new linguistic convention is being introduced into the language. So, baptismal acts can be viewed as forging linguistic conventions associating linguistic items with extra-linguistic entities. In short, baptismal acts establish name-bearer relations; the relation between proper name and its bearer is thus merely conventional. As a result, whenever one utters a name (intending to refer to whatever is its semantic reference)¹⁷ she refers to the particular object that is assigned to the name as its bearer on the basis of a particular linguistic convention established during the act of baptism. The difference between the referential behavior of proper names and those of definite descriptions is immense: while definite descriptions designate objects because the objects satisfy certain descriptive conditions, proper names designate their bearers because of the linguistic conventions introduced during the baptismal acts. As a result, an object needs not satisfy any descriptive condition to be designated by a given proper name. This is an important feature because there is, strictly speaking, virtually no property such that the object designated by a proper name has to exemplify in order to be designated by the name in question. So, the name designates the object irrespective of virtually any property the object exemplified or might have exemplified. Obviously, this is just another way of saying that the name designates the object with respect to all possible worlds in which that object exists, i.e. that the name is a rigid designator.¹⁸

the nature of linguistic conventions, but I do not wish to take here a definitive stand on this question. For our purposes it suffices to admit that, in the case of proper names, linguistic conventions—whatever they are and however they are constituted—can be taken as sanctioning the link between the names and their bearers. (The nature of linguistic conventions and their role in communication and meaning determination is one of the pivotal topics of Petr Kořátko. He authored numerous papers devoted to this topic. Moreover, they play an important role in his two philosophical books written in Czech; cf. Kořátko 1998, 2006.)

¹⁷ On the notion of semantic reference see Kripke (2011b).

¹⁸ The considerations from this paragraph suggest that there is a close connection between being a *de jure* rigid designator and being a directly referring term (in one particular sense of direct reference). For details see Zouhar (2011); for some related considerations see also Pendlebury (1990). According to the relevant notion of direct reference, there is no conceptual mediation between a name and its bearer; to my knowledge, this notion has been introduced by R. Barcan Marcus (cf. Marcus 1993a, 11; 1993b, 203). Yet another notion of direct reference is propounded by D. Kaplan (cf. Kaplan 1989a; 1989b): a directly referring term is one which supplies just its referent to the propositions expressed by sentences featuring the term. Kaplan's notion of direct

However, we should take one step further. Proper names should be allowed to designate their bearers even with respect to those possible worlds in which the objects designated fail to exist.¹⁹ Why? Well, because proper names designate their bearers conventionally. The conventionally established link between a name and an object has to persist with respect to all possible worlds that can be described in the language involving the name. And, of course, the worlds in which the name's bearer fails to exist do belong to those worlds which can be described in the language.

To use N. Salmon's terminology, the suggestion implies that proper names are best conceived of as being *obstinately* rigid designators as opposed to being merely *persistently* rigid ones. An obstinately rigid designator designates "the same thing with respect to every possible world, whether that thing exists there or not" (Salmon 1981, 34); on the other hand, a persistently rigid designator "designates the same thing with respect to every possible world in which that thing exists, and which designates nothing with respect to possible worlds in which that thing does not exist" (Salmon 1981, 33-34). Obviously, definite descriptions are persistently rigid, while proper names are obstinately rigid. So, proper names should be both rigid *de jure* as well as obstinately rigid. In fact, obstinate rigidity seems to be just the other side of rigidity *de jure* since both features can be explained in terms of the conventionally determined link between proper names and their bearers.²⁰

reference concerns the semantic content of (the sentences involving) certain kind of expression; in the present paper, however, the semantic content is not at issue. For further details see, for example, Martí (1995; 2003) and Kallestrup (2012, 35-37).

¹⁹ This idea has been ingeniously defended by D. Kaplan several decades ago. He claimed: "Some have claimed that though a proper name might [designate] the same individual with respect to any possible world ... in which he exists, it certainly cannot [designate] him with respect to a possible world in which he does not exist. With respect to such a world there must be a gap in the name's designation, it designates nothing. This is a mistake. There are worlds in which Quine does not exist. It does not follow that there are worlds with respect to which 'Quine' does not [designate]. What follows is that with respect to such a world 'Quine' [designates] something which does not exist in that world" (Kaplan 1973, 503). Cf. also Kaplan (1989a, 492-493; 1989b, 569).

²⁰ The claim that proper names are obstinately rigid is adopted by, e.g., Almog (1986), Branquinho (2003), Salmon (1981), Smith (1984; 1987) (as well as Kaplan and many others). There are also some dissenting voices according to which proper names are better viewed as persistently rigid; cf., most notably, Murday (2013). Murday's primary tar-

To put the same idea differently, let us try another course. Possible worlds can be used to explain certain features of languages. To simplify things to a considerable degree, the language is defined once its vocabulary involving simple expressions associated with linguistic conventions is provided and the grammatical rules used to generate compound expressions are given. It should be, thus, plain that linguistic conventions enter the picture at the language forming stage. Now, once we have the language at our disposal, we may describe its features using, *inter alia*, the possible world apparatus. What is important, however, is that the language should be there for our disposal first and foremost. And since linguistic conventions for proper names fix the name-bearer associations, it should be assumed that proper names are assigned their bearers *prior* the apparatus of possible worlds is invoked for whatever reasons.²¹ In other words, the name-bearer relation is not dependent on any possible world whatsoever. As a result, the relation has to hold for all possible worlds describable in the language at hand without any exception; it has to hold with respect to all possible worlds including those in which the bearer of the name does not exist.

Refusing this idea amounts to saying that the linguistic convention associating the name with its bearer holds no more with respect to those possible worlds in which the name's bearer does not exist. However, this is unacceptable because it means that the language comprising the linguistic convention in question has been revised somehow—the linguistic convention was removed from it. It means, strictly speaking, that we have another language in place of the original one.²² However, since the possible world apparatus was intended to be used in explaining certain features of the original language, the new language is utterly irrelevant. So, if we want to stick with the original language we cannot but accept the idea that the name is

get is the usual requirement that proper names must be obstinately rigid if they are to be directly referring (in Kaplan's sense; cf. footnote 17). He argues, however, that this is not the case and that the idea of direct reference is better combined with persistent rigidity.

²¹ As claimed by Smith, “[w]ith names, designata are specified in the base clauses of our semantic theory antecedently to the running of the possible-worlds machinery” (Smith 1987, 87).

²² For the sake of simplicity, I assume here a synchronic view of language. However, nothing important rests on this assumption. We could easily switch to the diachronic approach to language; what would be required are just some minor reformulations.

an obstinately rigid designator, i.e. that it designates its bearer even with respect to those possible worlds in which the bearer fails to exist.

Summing up, proper names designate objects on the basis of linguistic conventions that are established independently of possible worlds. Therefore, whatever possible world is described by the language, the name at hand designates its conventionally assigned bearer with respect to it. The name is, thus, a rigid designator. Because of its conventional nature, the link between the name and its bearer warrants that names are rigid *de jure* rather than *de facto*. And as far as I can see, the fact that a proper name designates its bearer even with respect to those possible worlds in which its bearer does not exist is a simple consequence of the conventional nature of nominal designation.

5. The puzzle

Now we are ready to jump on the puzzle advertised in Section 1. Given the previous considerations, we may provide two lines of reasoning, which are both acceptable and consistent with what we have just said, but lead to incompatible conclusions. Let x be a variable ranging over objects, P be a variable ranging over properties (of objects), w be a variable ranging over possible worlds, e be a variable ranging over expressions and c be a variable ranging over linguistic conventions. Let us further assume that o is an object and α is a proper name such that there is a linguistic convention associating α with o ; given this linguistic convention, α is a name of o and o is the bearer of α .²³

Given these assumptions, the first line of reasoning may be summarized in the following way:

²³ The indefinite article in “ α is a name of o ” suggests that o may have more than one proper name while the definite article in “ o is the bearer of α ” implies that α has just one bearer. The latter assumption might be taken as a simplification, though an innocuous one. We might admit that α has more than one bearer, but still it would hold that, *relative to a particular linguistic convention*, α may have only one bearer, namely o . In other words, there have to be as many linguistic conventions associated with a given name as there are bearers of the name; it cannot happen that a name designates various objects relative to *the same* linguistic convention. If this were the case, the name should have assigned various objects during one and the same baptismal act.

1. For any object x and any property P it holds that x exemplifies P only in the sense that there is a possible world w such that x exemplifies P in w .
2. Thus, for any property P it holds that o exemplifies P only in the sense that there is a possible world w such that o exemplifies P in w .
3. For any object x , any property P and any possible world w it holds that x exemplifies P in w only provided x exists in w .
4. Thus, for any property P any possible world w it holds that o exemplifies P in w only provided o exists in w .
5. There are possible worlds w and w' such that o exists in w and fails to exist in w' .
6. So, if there is a possible world w' such that o does not exist in w' , then no property P is such that o exemplifies P in w' .

Claim 1 is based on our common understanding of possible worlds as collections of states-of-affairs, where a state-of-affair might consist of an object exemplifying a property or of a tuple of objects exemplifying an n -ary relation. It respects the fact that properties are explicated as intensions, i.e., functions from possible worlds to extensions (sets of objects or of tuples of objects). Claim 2 is a particular instantiation of what is involved in claim 1. Claim 3 is, again, an unproblematic assumption that is based on the understanding of the exemplification relation outlined in Section 2. Similarly, claim 4 is a particular instantiation on claim 3. Claim 5 is an assumption that is based on the idea of variable universes for different possible worlds. Conclusion 6 follows from the above claims. It suggests that there is no possible world with respect to which it would hold both that o does not exist in that world and that o exemplifies some property or other relative to that world. As far as I can see, this argument is rather unproblematic and its conclusion is justified by its premises.

The same can be said about the second argument. It can be put forth in the following way:

1. For any expression e it holds that if e is a proper name then e is a *de jure* rigid designator and there is an object x and a linguistic convention c such that e designates x on the basis of c .
2. For any linguistic convention c and any possible world w it holds that c is in force regardless of how things are in w .
3. Thus, if there is a linguistic convention c such that α rigidly designates o on the basis of c , then for any possible world w it holds that

- α rigidly designates o with respect to w regardless of how things are in w , i.e., *inter alia*, regardless of o 's existence or non-existence in w .
4. There are possible worlds w and w' such that o exists in w and fails to exist in w' .
 5. Thus, if there is a linguistic convention c such that α rigidly designates o on the basis of c , then for any possible world w' such that o fails to exist in w' it holds that α rigidly designates o with respect to w' .
 6. If there is a linguistic convention c such that α rigidly designates o on the basis of c , then α exemplifies the property of *naming* o and o exemplifies the property of *being named by* α .
 7. Thus, if there is a possible world w' such that o fails to exist in w' , o still exemplifies the property of *being named by* α in w' .
 8. So, if there is a possible world w' such that o does not exist in w' , then there is at least one property P such that o exemplifies P in w' .

Claims 1 and 2 are assumptions based on what we have said in Section 4. Everyone who believes in rigidity *de jure* should accept them without much ado. Claim 3 is a particular instantiation derived from the above claims. Claim 4 is an assumption based on the idea of variable universes for different possible worlds; it serves as an introduction of a possible world in which a particular object does not exist. Claim 5 presents just a restatement of the consequent of claim 3 applied to those possible worlds in which a particular object does not exist. Claim 6 is an assumption but, again, an unproblematic one. The reason is that if we assume that there is a relation between a name and an object, both the name and the object have to exemplify the properties of being in the relation in question with the other entity. Claim 7 is derived from claims 5 and 6 and applies to those possible worlds in which a particular object does not exist. Finally, conclusion 8 is a mere generalization of the previous claim. It suggests that there is a possible world in which it holds both that o does not exist in that world and that o exemplifies some property relative to that world.

6. Possible ways out

The set of assumptions used in the arguments from the previous section, though innocuous at first sight, lead to the mutually incompatible conclu-

sions. This fact implies that at least one of the assumptions should be given up. All in all, there are three important claims occurring in the arguments that can be blamed for the derivations of the problematic conclusions:

1. It is impossible for an object to exemplify any property independently of any possible world (because properties are explicated as intensions, i.e. functions defined on possible worlds).
2. It is possible for an object to exist in some possible worlds without existing in all possible worlds (because different possible worlds are allowed to have different universes).
3. Proper names are *de jure* rigid designators (because they designate their bearers merely on the basis of linguistic conventions established during baptismal acts).

The puzzle could be blocked when any of the assumptions 1–3 is rejected. Assumption 1 is a crucial thesis backing the first line of reasoning, so denying assumption 1 amounts to refusing the first part of the argument. Assumption 3 is a crucial premise of the second line of reasoning, so denying assumption 3 amounts to refusing the second part of the argument. Assumption 2 is important in the derivations of both conclusions because it permits to take into account worlds in which a particular object does not exist. Consequently, if we refuse assumption 1 and/or assumption 2, the first part of the argument would be blocked, and if we refuse assumption 3 and/or assumption 2, the second part of the argument is blocked.

In what follows, I discuss some options that are available when the above assumptions are item-by-item denied. Denying each of the assumptions opens up various routes one may take but, needless to say, I cannot discuss all of them here.

To begin with, let us consider the possibility of withdrawing assumption 2. This would mean that there was one and the same universe for all possible worlds and that if an object existed in one possible world, it would exist in all worlds indiscriminately. As a result, there could not be an object which did not exist in certain possible worlds and, yet, exemplified some property or other in such worlds. There is, however, a price to be paid.

Firstly, the sentences of the form ‘ α exists’ (where α is a proper name of an object) would be necessarily true, if true at all. If α has been successfully introduced into the language as a proper name of something and, thus, a particular object has been named by α , the object designated must be a necessarily existing entity. In such a case, ‘ α exists’ is a necessarily true

sentence. Yet, we hardly take natural language sentences of the form ‘ α exists’ to be true of necessity (if true at all). This conclusion could be obviated if it were denied that proper names designate objects on the basis of linguistic conventions. If proper names were associated, instead, with some kind of (descriptive) condition that is to be satisfied by objects designated, α would designate something only if the object satisfied the condition in question. In such a case, the object, though necessarily existing, needs not be designated by the name with respect to certain possible worlds and the corresponding sentence of the form ‘ α exists’ would be false relative to such worlds (provided nothing else satisfied the condition in question). This suggestion would, however, undermine also the idea that proper names are rigid *de jure*.

Secondly, it seems that the sentences of the form ‘ α exists’ would be, if false, necessarily false. This is, again, rather unintuitive with respect to natural language sentences of the form ‘ α exists’. There is, however, something even more puzzling. It seems that a sentence of the form ‘ α exists’ (where α is a proper name and, thus, designates something on the basis of a linguistic convention) could be false only provided something went wrong during the act of introducing α into the language. For such a sentence could be false only if no object has been designated by α . Obviously, this might happen only if no object has been assigned to α during the baptismal act which means that α was not introduced as a full-blooded proper name. As a result, whenever one would come across a false sentence of the form ‘ α exists’, she would learn something about the stock of names—or purported names—we have in our language instead of something about the extra-linguistic world itself. This would be rather far-fetched. Anyway, these seem to be unpleasant consequences to be met by everyone who would like to eliminate the puzzle by discarding assumption 2.

Another route to eliminate the puzzle is denying assumption 3 according to which proper names are *de jure* rigid designators. If proper names were not rigid *de jure*, there would be no reason to admit they designate something also with respect to those possible worlds in which their bearers do not exist.²⁴ So, supposing that α is a proper name of an object o , α would designate o with respect to those possible worlds in which o exists, though, with respect to the remaining worlds, it would designate nothing at all. There

²⁴ Obviously, this option amounts also to denying that proper names are obstinately rigid. An ingenious argumentation to this effect can be found in Murday (2013).

would be, thus, no possible world such that *o* does not exist in it and, still, *o* does exemplify some property relative to it. So, no puzzle would arise.²⁵ There are, however, certain problematic consequences of this option.

If one wants to deny that proper names are rigid *de jure*, one has to deny also that proper names designate their bearers on the basis of certain linguistic conventions introduced during baptismal acts. Since the name-bearer relation is no more conventionally warranted, proper names should designate their bearers on a different basis. It might be suggested, for example, that an object has to satisfy some condition or other in order to be designated by a proper name.²⁶ This would amount to admitting some kind of descriptivism concerning proper names.²⁷ This is a complicated topic and I have no space to pursue it further in this paper. I should add, nevertheless, that adumbrating descriptivism need not be problematic in itself; descriptivism might be problematic only provided it could not offer satisfactory responses to the arguments devised against it.

What is worse, however, is that denying assumption 3 goes against an established empirical fact. It seems to be an obvious empirical fact that objects receive their names mainly on the basis of conventionally driven decisions undertaken during baptismal acts (or some other acts more or less resembling baptisms). The link between a name and its bearer is, therefore, best supposed to be conventional. If an object were determined to be a bearer of a name not on the basis of a linguistic convention but on the basis of, let us say, satisfying certain conditions (descriptive or other), then there would be no point in saying that the object has been assigned to the name during an act of baptism. It means, on the other hand, that if bap-

²⁵ Recently, P. Baumann attacked the view that proper names are *de jure* rigid designators in Baumann (2010). His argument is based on (i) denying that proper names *qua* types can be said to designate anything and on (ii) J. Katz's ideas concerning multiple bearerhood that is typical for ordinary proper names (cf. Katz 2001). Without going into details I just point out that both points can be contested such that claim 3 from the main text remains untouched.

²⁶ As a result, proper names, if rigid, could be, at most, rigid *de facto*.

²⁷ Obviously, a special kind of descriptivism would be required according to which the descriptive condition associated somehow with a proper name determined which object is designated by the name. This holds for Fregean versions of descriptivism ('Fregean' being used here in a very broad sense). On the other hand, non-Fregean versions—such as the one developed by J. Katz in a number of works; see, e.g., Katz (1992; 1994)—are not suitable in this connection.

isms are to be decisive for relating names and their bearers, satisfying conditions (descriptive or other) must be irrelevant to this purpose.²⁸ So, if one wants to discard baptisms as sources of conventionally established name-bearer relations, one has to explain somehow away the above empirical fact.

Anyway, we cannot retain both the idea of conventionally established name-bearer relations and the idea of name-bearer relations being determined such that the bearer of a name satisfied some kind of condition. So, when one decides to drop assumption 3, one has to cope somehow with the above consequences and provide an alternative (non-conventional) explanation of the link between proper names and their bearers.

The final option consists in refusing assumption 1. In such a case the paradox would not arise because properties would not be explicated as certain intensions defined on possible worlds and, thus, objects could, if properly explicated, instantiate properties independently of possible worlds. As a result, it could be feasible for an object to exemplify a certain property also with respect to such a possible world in which the object failed to exist (provided, of course, the new construal of properties admits such a possibility).

Now it seems that this effect could be achieved even though assumption 1 is not refused in its entirety; it merely suffices if it is restricted to a certain degree. We might distinguish ordinary properties such as *being a mammal* or *being red* from properties such as *being a bearer of α* , where α is a proper name. The former properties can still be explicated as ordinary intensions; it is a necessary condition for an object to exemplify them in some possible world that the object existed in the world in question. As a result, when we confine the term 'property' for these kinds of attributes, assumption 1 can be retained in a restricted form. So, the final option might consist in refusing to take the attributes like *being a bearer of α* as

²⁸ The incompatibility of the idea of conventionally established name-bearer relations with the idea of satisfactorily guaranteed name-bearer relations can be summarized also in the following way: If, to be a bearer of a name, an object has to satisfy some kind of condition, the name-bearer relation would hold only with respect to those worlds in which the object does satisfy the condition; on the other hand, since linguistic conventions are supposed to hold for all possible worlds that can be described in the language at hand, a proper name would designate its bearer with respect to all worlds and irrespective of any property its bearer exemplifies in those worlds. So, there is an insurmountable conflict between the two ideas.

properties explicated in terms of possible world intensions of a sort. This would suffice to deal with the puzzle.

The main challenge, however, would be to determine the dividing line between the properties capable of being explicated in terms of intensions and the other attributes. It might, perhaps, suffice to say that if an attribute is such that an object has it on the basis of how things are with our language and linguistic conventions that are in force in our language, then it cannot be explicated as an intension while all other attributes can be so explicated. This suggestion seems to be quite natural because the attributes an object has in virtue of linguistic conventions are somewhat special. As I have already pointed out, linguistic conventions are introduced regardless of how things are in some particular possible world or other. The language with all of its linguistic conventions is a device used to describe the actual world as well as all the worlds that are possible with respect to the actual one. At the same time, the language is not supposed to be an object inhabiting those worlds. So, all relations between linguistic items as well as all relations the linguistic items bear to anything else are supposed to be independent of possible worlds. Consequently, all the attributes anything has on the basis of the above relations should be also taken as independent of possible worlds. It means that the attributes like *being a bearer of α* or *being named by α* should be exemplified by objects independently of possible worlds, as required.²⁹

To sum up, the last option seems to be the least demanding one because it permits to preserve all the above assumptions 1 – 3 almost untouched. What is required is just a suitable restriction of assumption 1. Of course, the other ways eliminating the puzzle could be also viable, though they would call for more radical changes than the last one and would require more ingenious arguments than those provided in this paper on behalf of the final option.

²⁹ This suggestion, though somewhat unorthodox, can be extended to other cases as well. For example, mathematical entities can hardly be said to exemplify mathematical properties relative to possible worlds. Number 2 exemplifies the property of *being the even prime number* or the property of *being an even number* regardless of any possible world whatsoever. The reason does not consist in that number 2 is even or is the even prime number with respect to all possible worlds but in that numbers (or mathematical entities in general) do not belong to the universe of the actual world (or any other possible world). So, the above properties cannot be explicated as ordinary intensions defined on possible worlds; they must be attributes in some other, non-intensional, sense.

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