

Rigidity, Natural Kind Terms and Metasemantics

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1. Introduction: Initial Difficulties with Rigidity and Natural Kind Terms

A paradigmatic case of rigidity for singular terms is that of proper names. And it would seem that a paradigmatic case of rigidity for general terms is that of natural kind terms. However, many philosophers think that rigidity cannot be extended from singular terms to general terms. The reason for this is that rigidity appears to become trivial when such terms are considered: natural kind terms come out as rigid, but so do all other general terms, and in particular all descriptive general terms. This paper offers an account of rigidity for natural kind terms which does not trivialise in this way. On this account, natural kind terms are *de jure* obstinately rigid designators and other general terms, such as descriptive general terms, are not.

A characterisation of rigidity was first offered by Kripke (1971: 144-146), who distinguishes between rigid and nonrigid designators as follows:¹

¹ What I call here 'Kripke Rigidity', Salmon calls 'persistent rigidity' (See 2005: 34). Note here the difference between Kripke's first characterisation of rigidity in his 1971: 146, i.e. my (Kripke Rigidity), and that which he gives in *Naming and Necessity*: '[A] designator rigidly designates a certain object if it designates that object wherever [in every possible world in which] the object exists' (1980: 49). Unlike the first one, this second characterisation is neutral on whether a rigid designator still designates the same object with respect to possible worlds in which that object does not exist. That is to say, it is neutral on whether rigid designators are persistently/Kripke rigid or obstinately rigid. Obstinate rigidity will be introduced in section 2. It should be stressed that Kripke distanced himself from the characterisation given in his 1971, which is the view of rigidity usually attributed to him, in favour of the more neutral one he put forward in his 1980. See Kaplan 1989b, n. 8 and n. 8 for further discussion.

(Kripke Rigidity) A *rigid designator* is a designator that designates the same object in every possible world in which that object exists and does not designate anything in possible worlds in which that object does not exist.

(Kripke Nonrigidity) A *nonrigid designator* is a designator that is not rigid, i.e. a designator that either designates some object in some but not all of the possible worlds in which that object exists or designates different objects in different possible worlds.

There are clear examples of this distinction provided by proper names, such as ‘Aristotle’, which satisfy (Kripke Rigidity) and definite descriptions, such as ‘the pupil of Plato and teacher of Alexander the Great’, which satisfy (Kripke Nonrigidity). Of course, there are also many descriptions that satisfy (Kripke Rigidity), such as rigidified or actualised descriptions (e.g. ‘the *actual* pupil of Plato and teacher of Alexander the Great’) and descriptions that designate necessary existents (e.g. ‘the smallest prime’). This latter sort of descriptions belongs to a class of expressions which Kripke calls ‘strongly rigid designators’ (1980: 48-49): a strongly rigid designator satisfies (Kripke Rigidity) and it designates the same object (e.g. the number two) in every possible because there is no possible world in which that object does not exist – that object is a necessary existent.

Proper names and definite descriptions are singular terms, and one question that has received a lot of attention recently is whether rigidity can be extended to general terms. More precisely the question is whether there are examples of the distinction between (Kripke Rigidity) and (Kripke Nonrigidity) that are provided respectively by natural kind terms (e.g. ‘water’, ‘tiger’) and descriptive general terms (e.g. ‘transparent liquid of which lakes are composed, and which falls as rain’ or ‘yellow quadrupedal feline with blackish stripes’). It is natural to expect that while natural kind terms would satisfy (Kripke Rigidity), many descriptive general terms would not, just as while proper names satisfy it, many definite descriptions do not.² It is a natural expectation to have because natural kind terms seem to be

² See *inter alia* Kripke 1980, Donnellan 1983, Schwartz 2002, Soames 2002, Salmon 2003, 2005, and Marti 2004 for discussions of rigidity for natural kind terms. I leave aside the issue of how terms for artefacts (e.g. ‘clock’) or cultural properties (e.g. ‘bachelor’) should be understood: whether they should be assimilated to natural kind terms or to descriptive general terms.

semantically on a par with proper names, and descriptive general terms seem to be semantically on a par with definite descriptions. For instance, many philosophers think that, like proper names, natural kind terms are both directly referential and nondescriptive and that, like definite descriptions, descriptive general terms are neither. The problem however is that (Kripke Rigidity) seems to become trivial when general terms are considered.

Before seeing why, some preliminary remarks about extending (Kripke Rigidity) to natural kind terms are needed.

Firstly, natural kind terms are *general terms*, and some might think that for this reason they should not be treated as referring expressions. Here, I will treat them as such, which is required if they are at all going to be rigid designators: only referring expressions are designators. However, I will briefly consider an alternative proposal below.

Secondly, I will focus on natural kind terms (e.g. ‘tiger’) rather than on natural kind predicates (e.g. ‘is a tiger’), as some do (for instance Soames, 2002). Natural kind terms and predicates are closely related: to every natural kind term there corresponds a natural kind predicate. However, it is more natural to take natural kind terms to be the bearers of fundamental semantic properties such as rigidity or direct reference (on which I will say more later) rather than predicates, which are more complex expressions. I take natural kind terms (or natural kind nouns) to be syntactically and semantically simple expressions whose function is to refer to natural kinds: ‘water’ is a natural kind term; but descriptions such as ‘transparent liquid of which lakes are composed, and which falls as rain’ and ‘H₂O’ are not natural kind terms; they are both syntactically and semantically complex.

Thirdly, for simplicity, I will apply (Kripke Rigidity) to both singular and general terms. This could be objected to on the grounds that (Kripke Rigidity) specifies a relation between a designator and the *object* which it refers to, and it is not obvious that general terms refer to objects. This is indeed not obvious: the fact that an expression refers does not entail that it refers to an object. Intuitively, natural kind terms refer to natural kinds: these may be objects

on some construals of natural kinds (e.g. as intensions) but not on others (e.g. as universals).³ Nothing in what follows turns on whether natural kinds are objects, and so bearing in mind that it might not be a final characterisation when it comes to general terms, I will apply (Kripke Rigidity), as well as other semantic notions defined below, across the board.

Although nothing turns on whether the possible candidates to be the referents of natural kind terms are objects, finding a nontrivial application of (Kripke Rigidity) to natural kind terms puts some requirements on the sorts of properties these referents should have. In particular, applying (Kripke Rigidity) to natural kind terms requires finding *stable* referents across possible worlds to be the referents of these terms. Here is why. Consider first the simple proposal to construe the natural kinds which natural kind terms refer to as their extensions. On this proposal, natural kind terms will not be rigid because their extensions can be different in different possible worlds. For example the extension of the term ‘tiger’ is different in different possible worlds because the number of tigers is different in different possible worlds. However, intuitively, ‘tiger’ refers to the same natural kind in different possible worlds: if there was one tiger less than there actually are, ‘tiger’ would still refer to the same natural kind. So extensions are not suitable candidates to be the referents of natural kind terms. For an expression to be a rigid designator, its referent needs to stay the same in every possible world in which that referent intuitively exists.

So now consider the proposal that natural kind terms refer to stable entities that do not vary from world to world (*sui generis* natural kinds or properties or intensions or universals or what have you). If we follow this proposal, we are now faced with the problem of *trivialisation*, which I mentioned at the beginning. Natural kind terms will indeed come out as rigid, for instance ‘water’ will refer to the same kind in every possible world in which that kind exists. But equally virtually all general terms will come out as rigid, and in particular all descriptive general terms will come out as rigid. The reason for this is that it is just as

³ Some natural kind terms are mass nouns (e.g. ‘water’) and some are count nouns (e.g. ‘tiger’). It is a debated question how different syntactically and semantically the two sorts of terms really are (see Koslicki 1999 for discussion). For instance, on some accounts ‘water’ is a singular term that refers to an object, on others it is a general term that does not refer to an object. I shall treat both mass noun and count nouns as general terms. Nothing substantive hangs on doing so here; for if mass nouns are singular terms, the conception of rigidity for natural kind terms and proper names developed in this paper still apply to them.

appropriate to take general descriptive terms to refer to stable referents as it is to take natural kind terms to refer to stable referents. For instance, ‘transparent liquid of which lakes are composed and which falls as rain’ will be rigid: it will designate the same property (say) in every possible world in which that property exists, namely that of being a transparent liquid of which lakes are composed and which falls as rain.⁴

So rigidity either does not apply (if referents are not stable) or trivialises (if referents are stable) when general terms are considered.

Some have argued that these problems could be avoided by not taking natural kind terms to be referring expressions, a possibility which I have alluded to above. Rather, they are expressions whose function is simply to *apply to objects* or be true of samples in their extensions, and not to refer to natural kinds. For instance Devitt and Sterelny have proposed the following characterisation of what they call ‘rigid application’ which is supposed to hold of *all and only* natural kind terms (see Devitt and Sterelny 1999: 85, see also Devitt 2005):

(Rigid Application) A general term F is a rigid applier iff, if F applies to an object in the actual world, and that object exists in another possible world, then F applies to that object in that world.

(Rigid Application) entails that a rigid applier F , if it applies to an object in the actual world, applies to that object in every possible world in which that object exists; that is to say, that object is necessarily F . Intuitively given some plausible externalist semantic assumptions, ‘water’ is a rigid applier because if it applies to samples of water (H_2O) in the actual world, it applies to samples of water in all possible worlds; however ‘transparent liquid of which lakes are composed and which falls as rain’ is not: it may apply to samples of water in the actual world and to some other kind in another possible world.

⁴ Several attempts have been made (e.g. Martí 2004 and LaPorte 2006) to try to create an asymmetry between natural kind terms and descriptive general terms by distinguishing between different properties that the latter might refer to (or express), some rigidly, others nonrigidly. I do not review these proposals here.

However, this account of rigidity is inadequate. First, (Rigid Application) is not inclusive enough: it leaves out many natural kind terms such as phase sortals (e.g. ‘tadpole’ or ‘caterpillar’), which do not come out as rigid. For instance, ‘caterpillar’ is not a rigid applier because something that is a caterpillar in the actual world could be a butterfly in some other possible world; that thing is not necessarily a caterpillar.⁵ Secondly, (Rigid Application) is too inclusive: it counts as rigid appliers expressions that are not natural kind terms. For instance it counts noun-phrases such as ‘tiger or lemon’ as rigid appliers: if ‘tiger or lemon’ applies to an object in the actual world and that object exists in another possible world, then ‘tiger or lemon’ applies to that object in that world. Intuitively these are not the sorts of expressions that we should count amongst natural kind terms. So (Rigid Application) is not the correct account of rigidity for natural kind terms.

Because of these difficulties in applying it to general terms, some have concluded that (Kripke Rigidity), and indeed any notion of rigidity, is of no use when it comes to general terms. For instance Stephen Schwartz has claimed that because natural kind terms and descriptive general terms all come out as (Kripke Rigid), ‘[r]igidity has lost its exclusivity, like a club of which all are automatically members, and thereby its interest’ (Schwartz, 2002: 266, see also Soames, 2002: ch. 9.) I think that this conclusion is incorrect. In the next sections, I will develop an account of rigidity that is ‘exclusive’ and that does not trivialise when general terms are considered.

To do so, I will first briefly outline Kaplan’s semantic and metasemantic framework of direct reference for proper names. I will then argue that this framework can be used to develop a notion of rigidity that carves at the semantic joints: it applies to proper names and natural kind terms, and not to definite descriptions and descriptive general terms.

⁵ It could be denied that phase sortals are natural kind terms (Devitt 2005); but this seems *ad hoc*. It could also be claimed that rather than applying to (enduring) objects, natural kind terms apply to temporal parts: in such a case ‘caterpillar’ would apply rigidly to all and only the temporal parts that are in its extension; any such temporal part would necessarily be a caterpillar. I do not discuss this option further, which seems to be an overreaction to the problem of applying rigidity to natural kind terms.

2. Obstinance and the Framework of Direct Reference

Many philosophers think that proper names and natural kind terms are directly referential expressions, and that definite descriptions and descriptive general terms are not. A directly referential expression is an expression whose reference is unmediated, i.e. not made via the mediation of any sort of descriptive content. As Kaplan puts it:

The directly referential term goes directly to its referent, *directly*, in the sense that it does not first pass through the proposition. Whatever rules, procedures, or mechanisms there are that govern the search for the referent, they are irrelevant to the propositional component, to content. When the individual is determined, [it] is loaded into the proposition.⁶ (1989b: 569)

Direct and nondirect reference can be defined as follows:

(Direct Reference) A *directly referential term* is a term that only contributes its referent to the propositions expressed by the sentences in which it occurs.

(Nondirect Reference) A *nondirectly referential term* is a term that refers but does not only contribute its referent to the propositions expressed by the sentences in which it occurs.

For Kaplan, there are in natural language two paradigmatic sorts of directly referential expressions: indexicals and proper names. Both types of expressions only contribute their referents to the propositions expressed by the sentences in which they occur; and for both, the ‘rules, procedures, or mechanisms there are that govern the search for the referent’ are not part of the propositional content. These rules are for indexicals their *semantic* characters, which determine their referents in different contexts of use. For instance the semantic character of the indexical ‘I’ is roughly that ‘I’ always refers to the agent of the context – where the agent can be different in different contexts. Proper names do not have semantic characters: once fixed, their referents remain the same in all contexts of use. The rules or

⁶ Kaplan is working with a Russellian construal of propositions; other construals of propositions would be possible as long as there is a clear sense in which objects can be components of these propositions.

mechanisms that govern the search for the referent belong to the *metasemantic* facts that are relevant to assigning it a referent in the first place. For instance, once its referent is fixed, the proper name ‘Alice’ refers to Alice in all contexts of use. (See Kaplan, 1989b: 573 ff.).

I will assume that the construal of direct reference which is relevant to natural kind terms is that for proper names: like proper names, natural kind terms do not have semantic characters – their referents are not different in different contexts of use. So although much of what follows would also be true of indexicals, I will confine the scope of my argument to proper names and natural kind terms.

For Kaplan, the metasemantics of direct reference for proper names – that is, the explanation of how they get to be directly referential – involves the notion of *dubbing*. Proper names have the semantic property of direct reference because they are introduced at dubbings. Dubbing can be defined as follows (see Kaplan, 1990: 93ff.):

(Dubbing) A dubbing is the semantic individuation of an expression by assigning it a referent.

Kaplan talks of dubbings as creating words. For instance, the generic name ‘Alice’ pre-semantically (before it has been used in a particular dubbing) has no meaning whatsoever; if we dub something with it, we create a new name (what he calls a ‘common currency name’).⁷

In section 4, I will address the questions of what exactly counts as a dubbing and how dubbing might apply to both proper names and natural kind terms. For now, suffices to say that when it comes to proper names the semantic property of direct reference is entailed by the metasemantic one of being introduced at a dubbing: if a dubbing is the complete semantic individuation of a proper name by assigning it a referent, then all that a name

⁷ See Kaplan 1989a: 560-1, 1973: 500 ff., and 1990, where he argues that the relation between generic and common currency names is not that between type and token: type and token are type and token of the same expression syntactically or syntactico-semantically individuated; but the relation between generic and common currency names is merely orthographic. We do not have to choose here between these ways of understanding this relation, which can both make sense of the idea that proper names are directly referential.

contributes to the propositions expressed by the sentences in which it occurs is the referent that individuates it.

Consider rigidity again. At first, Kaplan took direct reference to be just a way of cashing out (Kripke Rigidity): he thought that the latter was underpinned by the former. However, they come apart. Firstly, not every expression which satisfies (Kripke Rigidity) is directly referential. For instance rigidified descriptions are not directly referential. Secondly, although every directly referential expression is a rigid designator, it is a different sort of rigid designator than that specified in (Kripke Rigidity). It is an *obstinately rigid designator*. Kaplan defines obstinately rigid and nonobstinately rigid designators as follows (see Kaplan, 1989b: 568 ff., and also Salmon, 2005: 33-4):

(Obstinacy) An *obstinately rigid designator* is a designator that designates the same object in all possible worlds regardless of whether it exists at a given world.

(Nonobstinacy) A *nonobstinately rigid designator* is a rigid designator that is not obstinate, i.e. that does not refer to the same object in all possible worlds regardless of whether it exists at a given world.

It is easy to see that (Obstinacy) is a semantic consequence of (Direct Reference): if a directly referential term only contributes its referent to the propositions expressed by the sentences in which it occurs, then, whenever we evaluate these propositions at a world, the referent is already part of the propositions evaluated. So at that world, there automatically is a referent for the term. As Kaplan puts it:

If the individual is loaded into the proposition (to serve as the propositional component) before the proposition begins its round-the-worlds journey, it is hardly surprising that the proposition manages to find that same individual at all of its stops, even those in which the individual had no prior, native presence. The proposition conducted no search for a native who meets propositional specifications; it simply ‘discovered’ what it had carried in. (1989b: 569)

Thus (Direct Reference) does not entail (Kripke Rigidity). With (Direct Reference), it is guaranteed in advance of evaluation that a directly referential term has a referent in all possible worlds, something which (Kripke Rigidity) does not guarantee. Consider the sentence ‘Aristotle is a philosopher’. If ‘Aristotle’ is directly referential, Aristotle is part of the proposition expressed by that sentence; if so, unlike with (Kripke Rigidity), when we evaluate that sentence at worlds, we do not look for Aristotle in these worlds, and *then*, if he exists there, say that ‘Aristotle’ refers to that person in that world and if he does not exist there, say that ‘Aristotle’ does not refer to anything. With (Obstinacy), if we evaluate ‘Aristotle is a philosopher’ at a world in which Aristotle does not exist, ‘Aristotle’ still refers to (the actual) Aristotle. However the sentence is not true because it is not true that Aristotle is a philosopher in that world (he has no native presence there).⁸

Also, (Direct Reference) does not hold of definite descriptions, which contribute something descriptive to the propositions expressed by the sentences in which they occur: the individuals they refer to are not part of these propositions and at every world at which we evaluate such propositions we have to search for an object that satisfies the description.

Where does this leave us with the issue of definite descriptions and rigidity? Now, although definite descriptions are not directly referential, many such descriptions are obstinately rigid. Of course, some descriptions do not satisfy (Obstinacy): for instance, given that Aristotle does not necessarily exist, ‘The pupil of Plato and teacher of Alexander the Great’ and its rigidified version ‘The actual pupil of Plato and teacher of Alexander the Great’ do not satisfy (Obstinacy). The former is not rigid at all, and while the latter satisfies (Kripke Rigidity), it does not satisfy (Obstinacy). This is because ‘The actual pupil of Plato and teacher of Alexander the Great’ does not refer to anything in possible worlds in which Aristotle does not exist: if nothing in those worlds satisfies the predicate ‘*x* is the actual pupil

⁸ Kaplan initially thought that direct reference underpinned Kripke’s notion of rigidity because he thought that Kripke meant by it what he means by ‘obstinate rigidity’ (see Kaplan, 1989b: 569-71). Not so. In a letter that Kaplan partly reproduces (n. 8), Kripke gives the following definition of rigid designation: ‘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*’ (Kripke’s italics). Like what I have called ‘Kripke Rigidity’ in section 1, this definition does not require it to be settled in advance of evaluation what a designator refers to at worlds at which there is no candidate to be the name’s referent. However, unlike with (Kripke Rigidity), an interpretation of this definition in terms of obstinacy is not ruled out.

of Plato and teacher of Alexander the Great', the definite description is empty.⁹ However, descriptions that are strongly rigid designators, such as 'The smallest prime', are obstinate: there will not be worlds in which nothing satisfies the description 'x is the smallest prime'.

In Kaplan's framework there is an organic connection between (Dubbing), (Direct Reference), and (Obstinacy) for proper names: (Dubbing) entails (Direct Reference), which entails (Obstinacy). But although (Dubbing) and (Direct Reference) are distinctive of proper names, as opposed to definite descriptions, (Obstinacy) is not, because of the modal status of the referents of strongly rigid definite descriptions. So if we want a notion of obstinacy that is distinctive of proper names, and does not apply to these descriptions, (Obstinacy) is not yet adequate. In the next section, I will consider natural kind terms again, fine tune (Obstinacy) and offer a version of it that applies to proper names and natural kind terms, and not to descriptive singular or general terms.

3. Obstinacy *De Jure* and Obstinacy *De Facto*

If, like proper names, natural kind terms are directly referential, they are also obstinately rigid. I am going to assume here that both proper names and natural kind terms are directly referential. In section 4, I will discuss this question in greater detail.

Now, recall that our original problem was that (Kripke Rigidity) trivialises when stable referents (such as *sui generis* kinds, intentions, properties or universals) for natural kind terms are considered. Here, the same sort of problem arises with the notion of rigidity at issue in (Obstinacy). More precisely, the problem comes from the fact that the best candidates to be the stable referents of general terms seem to be *necessary existents* – that is, things that exist in all possible worlds. So (Obstinacy) also trivialises for general terms because of the modal status of the sorts of entities which they refer to: general terms *all* refer to the same things in all possible worlds. In Kripke's terminology, general terms are all strongly rigid.

⁹ Here, I assume that the domain of the variable with respect to a possible world is restricted to the individuals in that world.

So (Obstinacy) is not a sort of rigidity that applies to natural kind terms but not to descriptive general terms. This problem with obstinacy is related to that just raised concerning singular terms, where not only proper names but also strongly rigid definite descriptions were obstinately rigid because the latter refer to necessary existents. So both in the case of singular and general terms, the reason why (Obstinacy) is not distinctive of proper names and natural kind terms is that many descriptions satisfy (Obstinacy) because they refer to necessary existents. Although the root of the problem is the same, the problem is more dramatic in the case of general terms because arguably, all descriptive general terms refer to necessary existents and so (Obstinacy) trivialises in this case.

There are several ways in which this problem can be addressed. I will not consider in detail here ways that consist in requiring that the referents of general terms do not necessarily exist. For instance, it could be argued that natural kinds only exist in some possible worlds, namely worlds in which they apply to samples – e.g. worlds in which there are no parcels of water are worlds in which the kind water does not exist. One possible way to construe kinds so understood would be as immanent universals, perhaps in the fashion of Aristotelian moderate realism. On such sorts of proposals, natural kind terms would be obstinately rigid because they are directly referential, and descriptive general terms would not be obstinately rigid because they are not directly referential – many of them would merely satisfy (Kripke Rigidity). In particular, the natural kind term ‘water’ would be obstinately rigid because it is directly referential; but the descriptive general term ‘transparent liquid of which lakes are composed and which falls as rain’ would not even be rigid: it would not refer to anything in worlds in which no property satisfies its descriptive content, and it would refer to a different property in worlds in which another property satisfies its descriptive content. For this to be an attractive proposal that works both for general and singular terms, it would also have to hold of the strongly rigid definite descriptions mentioned previously, such as ‘The smallest prime’; that is to say, it would also need to be the case that numbers do not necessarily exist.

I do not think that this proposal is worth pursuing. From a semantic standpoint it is not very appealing: it requires us to make substantive assumptions about metaphysical matters, e.g.

the metaphysics of kinds or properties or numbers. And it would be more satisfactory to be able to distinguish between the rigidity of natural kind terms and that of descriptive general terms not only on metaphysical, but also on semantic grounds.

Rather, I suggest that we look for a construal of (Obstinacy) that avoids trivialisation by appealing to Kripke's distinction between *de jure* and *de facto* rigid designation, which he applies to his own characterisation of rigidity, (Kripke Rigidity). According to Kripke, a designator is rigid *de jure* if it is rigid as a matter of *stipulation* and it is rigid *de facto* if it happens to be rigid. As he puts it, the distinction is between:

‘*de jure*’ rigidity, where the reference of a designator is *stipulated* to be a single object ... and mere ‘*de facto*’ rigidity, where a description ‘the x such that Fx ’ happens to use a predicate ‘ F ’ that in each possible world is true of one and the same unique object. (Kripke, 1980: 21 n.21)

For instance, the description ‘The smallest prime’ satisfies (Kripke Rigidity) *de facto* because it merely happens to use the predicate ‘is a smallest prime’, which in each possible world is true of the number two. By contrast, although the description ‘The number Alice is thinking about now’ happens to refer to the number two, it is not *de facto* rigid because there are worlds in which ‘is a number which Alice is thinking about now’ refers to another number. Indeed that latter description does not even satisfy (Kripke Rigidity). The way Kripke states it, *de facto* rigidity only holds of strongly rigid designators – rigid designators of necessary existents – because it demands that the predicate in the description is true of one and the same unique object *in each possible world*. However it is natural to think that descriptions that satisfy (Kripke Rigidity) but are not strongly rigid could still be rigid *de facto*. Intuitively ‘The actual pupil of Plato’ satisfies (Kripke Rigidity) *de facto*, although it is not strongly rigid: it happens to use a predicate ‘is an actual teacher of Plato’ that is true of one and the same unique object *in which that object exists*. That is, since there are worlds in which that object does not exist, that description is not strongly rigid.

I will assume here that we can apply *de facto* rigidity to descriptions that are rigid but not strongly rigid. However, note that for my purposes nothing turns on this because the descriptions that are troublesome for (Obstinacy) as the distinctive notion of rigidity for proper names and natural kind terms are all *de facto* strongly rigid. More precisely, only definite descriptions and descriptive general terms that satisfy (Kripke Rigidity) *de facto* and are strongly rigid satisfy (Obstinacy). Definite descriptions and descriptive general terms that satisfy (Kripke Rigidity) *de facto* but are not strongly rigid designators do not satisfy (Obstinacy).

Thus, two things conspire in making (Obstinacy) not distinctive of proper names and natural kind terms: the fact that certain descriptions use certain predicates, which given their meanings happen to apply to the same thing in all possible worlds, and the metaphysical status of the things referred to by the descriptions that contain those predicates.

Let us now apply the *de jure-de facto* distinction to (Obstinacy), which is the construal of rigidity required by (Direct Reference) and so intuitively applies to proper names and natural kind terms. We get the following contrast between two ways of being obstinately rigid:

(De Jure Obstinacy) A *de jure obstinately rigid designator* is a designator that designates the same object in all possible worlds as a matter of stipulation.

(De Facto Obstinacy) A *de facto obstinately rigid designator* is a designator that designates the same object in all possible worlds, but not as a matter of stipulation.

My suggestion is now that *(De Jure Obstinacy)* is the distinctive notion of rigidity we are looking for: both proper names and natural kind terms kind terms satisfy *(De Jure Obstinacy)*, and neither definite descriptions nor descriptive general terms do – although they may satisfy *(De Facto Obstinacy)*. In particular *(De Jure Obstinacy)* does not trivialise when general terms are considered. Also, whether a designator satisfies *(De Jure Obstinacy)* has nothing to do with the metaphysical status of its referent, i.e. with whether it refers to a necessary existent. It has to do with the fact that it is stipulated to be obstinately rigid.

To make this suggestion precise, the notion of a stipulation needs to be made precise, which turns out to be no straightforward matter.

The contrast between *de jure* and *de facto* rigidity is formulated in terms of stipulation and lack of stipulation as to whether a term is rigid. As it is, this is unsatisfactory because there is a sense in which whether an expression is rigid is always a matter of stipulation – or at least, there is always a sense in which a stipulation comes into play. And this is the case whether or not that expression is directly referential. Thus consider for instance the case of rigidified descriptions such as ‘the actual pupil of Plato and teacher of Alexander the Great’. There is a clear sense in which such descriptions are rigid as a matter of stipulation – because the adjective ‘actual’ is defined so as to always refer to the actual world. So there is a sense in which it does not seem to be the case that such descriptions are rigid because they contain predicates (e.g. ‘is an actual pupil of Plato and teacher of Alexander’) that *happen* (i.e. is not stipulated) to apply to the same objects in every possible world in which those objects exist. Such descriptions have been *rigidified*, i.e. stipulated to be rigid.

Now, again, descriptions such as ‘the actual pupil of Plato and teacher of Alexander the Great’ do not immediately concern us here because they satisfy (Kripke Rigidity) but not (Obstinacy). However, consider again Kripke’s example of a *de facto* strongly rigid designator, such as the description ‘the smallest prime’, or better the rigidified description ‘the actual smallest prime’. It is not clear that these descriptions do not satisfy (*De Jure* Obstinacy). So the distinction between *de jure* and *de facto* demands further analysis.

One possible articulation of the distinction between *de jure* and *de facto* obstinate rigidity goes by appealing to the notion of contingency, which is invited by that of a description happening to use a predicate that is true of one and the same unique object in each possible world. On this proposal, the contrast would be between expressions that are contingently rigid (*de facto*) and expressions that are not contingently rigid (*de jure*) – where the former are expressions that, in some sense, could have failed to be rigid. On this proposal, ‘the smallest prime’ would be a description that could have failed to be obstinately rigid because

the predicate ‘x is a smallest prime’ could have failed to be true of the same unique object in each possible world.

There are two ways of making this proposal. The first would yield that ‘the smallest prime’ is contingently obstinately rigid because it could have failed to refer to a necessary existent, namely the number two. But this cannot be made sense of: it is false to say that the ‘the smallest prime’ could have failed to refer to the number two, in particular it is false to say that ‘x is a smallest prime’ could have failed to apply to the number two. Given this description’s (and predicate’s) meaning, it just does not seem that it could have failed to refer to that number. For it to do so, it would have needed to have another meaning than it actually has. Here it would not help to individuate expressions syntactically, and say that rigidity is a property of syntactic type, rather than semantically in terms of their meanings: ‘the smallest prime’ would indeed only be contingently rigid, but then all rigid expressions would only be contingently rigid. In particular all expressions that we hoped would be rigid *de jure*, such as proper names and natural kind terms, would be contingently rigid – i.e. *de facto* rigid.

The second way has it that ‘the smallest prime’ is contingently obstinately rigid because the number two might not have existed necessarily. On this proposal, the description ‘the smallest prime’ would be contingently rigid because if the number two had not been a necessary existent, the description would not have been rigid. The problem here is again that this option forces us to make decisions about the metaphysical status of the number two. Also, more generally, it requires us to deny that what is necessary is necessarily necessary, i.e. to reject S4, something that perhaps we should not do (at least not for this reason).

So we cannot articulate the contrast between *de jure* and *de dicto* obstinacy in terms of whether it is contingent that an expression satisfies (Obstinacy).

Consider yet another way of articulating the distinction between *de jure* and *de facto* rigid designators. It is sometimes suggested that this distinction is just that between *nondescriptive*

and *descriptive* designators.¹⁰ However, the suggestion of assimilating *de jure* rigidity to nondescriptive designation and *de facto* rigidity to descriptive designation is unsatisfactory; for although it might in fact be true that all expressions that are *de jure* rigid are nondescriptive and that all expressions that are *de facto* rigid are descriptive, nevertheless these two distinctions – *de jure-de facto* rigidity and nondescriptive-descriptive designation – are intuitively different. The former concerns the way an expression is made to refer to its referent and the latter concerns whether an expression is semantically complex. If these are distinct semantic distinctions (although perhaps coextensive), we need to find something else to explain the distinction between *de jure* and *de facto* rigidity, as well as the fact that it might coincide with that between nondescriptive and descriptive designation. It is true that, given the way *de facto* rigidity is defined by Kripke, only descriptive expressions are *de facto* obstinate, for whether an expression is *de facto* obstinate is a matter of it using a predicate that happens to apply to the same thing in all possible worlds. If an expression uses a predicate, it is descriptive. However, the way the distinction between *de jure* and *de facto* is stated, does not *preclude* there being descriptions that are *de jure* obstinate. So we still need an explanation of why all *de jure* obstinate expressions might be nondescriptive.

I now want to argue that the contrast between *de jure* and *de facto* obstinate rigid designation should be explained in terms of the metasemantics of direct reference. I think that it is natural to turn to direct reference for an explanation of the distinction between *de jure* and *de facto* rigidity: direct reference semantically entails obstinate rigid designation, and it is natural to think that this entailment holds as a matter of stipulation. Now, as we have seen, (Direct Reference) applies to proper names because they are introduced at dubbings. I suggest that it is (Dubbing) that is the relevant metasemantic explanation for why an expression has the semantic property of direct reference. Also, the notion of a stipulation is intuitively a metasemantic notion, which concerns our intention/decision to assign a given semantic property to an expression. So it is appropriate to turn to dubbing as the relevant metasemantic notion to explain *de jure* obstinacy. Again, a dubbing is the semantic individuation of an expression by assigning it a referent. And so an expression introduced as

¹⁰ Salmon (2005: 35) takes the distinction in this way. And in many ways it is a natural way to take what Kripke says about it (see again his 1980: 21, n.21). See also Stanley 1997: 537.

a dubbing is directly referential: it only contributes its referent to the propositions expressed by the sentences in which it occurs. And that means that that expression is obstinately rigid – more precisely, it is *de jure* obstinately rigid because it is the very way in which it has been individuated that makes it obstinately rigid.

This metasemantic explanation in terms of dubbing also gives us a good contrast between expressions that satisfy (*De Jure* Obstinacy) and those that merely satisfy (*De Facto* Obstinacy). As I said, I take it that proper names and natural kind terms satisfy the former and definite descriptions and descriptive general terms do not. Definite descriptions and descriptive general terms are not introduced at dubbings: they are not individuated by assigning them referents. So they are not stipulated to be obstinate. Such expressions will merely be *de facto* obstinately rigid designators, if they refer to things that exist in all possible worlds. Further, the metasemantic explanation of (*De Jure* Obstinacy) in terms of dubbing also explains why expressions that are *de jure* obstinate are not descriptive: for descriptive expressions are not individuated by assigning them a referent. So *de jure* obstinacy and nondescriptivity indeed coincide, but the explanation for this is given from above – in terms of the fact that they are semantic consequences of the same metasemantic story.

So the final proposal concerning rigidity for proper names and natural kind terms is this: it is (*De Jure* Obstinacy) that is the distinctive, non-trivial, notion of rigidity. Natural kind terms and proper names are *de jure* obstinately rigid, definite descriptions and descriptive general terms are not. To satisfy (*De Jure* Obstinacy) such terms have to satisfy (Direct Reference) and (Dubbing), because the stipulation alluded to in (*De Jure* Obstinacy) is the dubbing. Ultimately it is the metasemantics of direct reference that enables us to single out proper names and natural kind terms as *de jure* obstinately rigid designators. In the next section, I will say more about how the metasemantic notion of dubbing should be taken to work.

In this debate concerning whether rigidity trivialises when general terms are considered, it is generally assumed that in order to draw a contrast between two sorts of expressions in terms of (some construal of) rigidity that carves at the semantic joints, we ought to say that one

sort is rigid and that the other is *not at all* rigid. The current proposal makes no such assumption. And given the plethora of notions of rigidity that are available, there is no reason to expect that such an assumption should hold. According to my proposal we carve at the semantic joints by distinguishing between different types of rigidity. Both proper names and natural kind terms are distinctive in satisfying (*De Jure* Obstinacy), descriptive expressions that refer to necessary existents satisfy (*De Facto* Obstinacy), and remaining rigidified descriptions satisfy (Kripke Rigidity). And so it may be the case that rigidity is like a club which is not very interesting because too many get automatic membership. However, if I am right, there is still a very exclusive VIP area at the back of the club, where one gets in only by stipulation.¹¹

4. Dubbing and Natural Kind Terms

I have claimed that the distinctive notion of rigidity for proper names and natural kind terms is that of *de jure* obstinate rigidity. And I have argued that for them to be rigid in this way, they would have to be introduced at dubbings. In this last section I briefly address some possible worries concerning the idea that natural kind terms might be introduced at dubbings. Here I assume that the claim that proper names are introduced at dubbings to be comparatively unproblematic, and so I do not offer a defence of the claim that they are. I merely argue that saying that natural kind terms are introduced at dubbings is no more problematic than saying that proper names are introduced at dubbings. A full defence that proper names and natural kind terms are introduced at dubbings would require a separate paper.

As I said before, for Kaplan a dubbing is the semantic individuation of a term by assigning it a referent. One key condition on the successful introduction of a term at a dubbing is that there is a unique referent for that term. The other is that the dubber intends to introduce a new term rather than to follow an already established use of a term (see Kaplan 1989a: 560). I label these two conditions ‘(Creativity)’ and ‘(Unicity)’:

¹¹ In the appendix, a table summarises the different notions of rigidity and which sorts of expressions they respectively apply to.

(Creativity) The dubber has *creative linguistic intentions*.

(Unicity) There is a *unique referent* to the term introduced.

(Unicity) entails that a term that does not uniquely refer is not the result of a successful dubbing. In particular, empty terms are not the result of successful dubbings: for instance, terms that – perhaps unbeknownst to the would-be dubber – turn out to be empty at the dubbing or terms that are introduced in fictional contexts.¹² That means that (Unicity) can trump (Creativity). The creative linguistic intentions of the dubber are *defeasible*: she may be wrong – if there is no unique candidate to be the referent, she may intend to introduce a term and fail to do so. Saying that creative linguistic intentions are defeasible implies that those intentions do not carry a huge amount of semantic weight. As a corollary, that implies that it is not always transparent to a speaker which semantic properties an expression has, in particular whether that expression is directly referential or is a rigid designator (and what sort). This might be hidden from view at the time of the dubbing.

These conditions on dubbing give us a good *prima facie* contrast between proper names and definite descriptions. For one thing, (Creativity) has no clear application to the latter, because definite descriptions are typically made up of expressions that are already in the language. So there is no real introduction or creation of such a description, but rather the putting together of expressions that have already been assigned a meaning. Moreover, (Unicity) is not a condition on the use of a definite description, whose meaning is not tied to there being a unique referent: definite descriptions can be empty or pick out several objects.

The question now is whether these conditions on dubbing give us a good contrast between natural kind terms and general descriptive terms. I consider three objections to the idea that natural kind terms are introduced at dubbings, and argue that they are not successful.

¹² Kaplan wants to rule out expressions that are introduced in fictional, imaginary, hallucinatory, or otherwise defective contexts as contexts in which an individual is dubbed. In his 1968: 383 he also excludes as successful dubbings of merely possible objects such as if we dubbed ‘Newman 1’ the first child born in the 22nd Century. (However this is counted as a successful dubbing in his 1973: n. 7.) This sort of case raises the question of the extent to which the dubber has to be acquainted (whether demonstratively or descriptively) with the dubbee in order for the dubbing to count as a dubbing *of* the dubbee. See Kaplan, 1968 and 1973 for discussion.

Firstly, it could be argued that natural kind terms are typically not introduced at dubbings for the reason that a dubbing is a simple unique act of baptism, and natural kind terms are generally not introduced in the language by some single such act. They typically emerge in the language as the result of a more gradual process, not as the result of a single intentional act but of many.

That seems right. However, note that the same holds of many names – many names are gradually introduced in the language. For instance, we can think of the gradual process by which a nickname sticks (Evans' example in his 1973). So it is not clear that we have a significant difference here between proper names and natural kind terms. In both cases talk of 'dubbing', if it suggests a single act of baptism, is a convenient fiction, and it would ultimately have to be understood in a way that allows for directly referential expressions to be gradually introduced in the language.¹³

One helpful way to understand the notion of a dubbing is as follows: saying that a term has been introduced at a dubbing need not be making an actual historical claim about its actual mode of introduction. In particular, it need not be making the claim that there was actually a single act of baptism during which that term was introduced. For many terms, we just do not know the precise context or mode of their introduction into the language, and probably such an introduction was somewhat messy. For such terms, the idea of them being introduced at dubbings could rather be taken as follows: given their basic semantic properties (e.g. direct reference, *de jure* obstinacy), these terms are such that they *could* have been introduced at a single act of baptism, i.e. at a dubbing. For instance, given the basic semantic properties of 'tiger', this natural kind term could have been introduced at a single act of baptism. In particular, 'tiger' could have been introduced by just pointing at a tiger and ostensively

¹³ Many philosophers talk of reference-fixing or ostensive definitions in connection with natural kind terms – these too suggest a single act of baptism, and these too are convenient fictions. Note in passing that dubbing and reference-fixing are different. Unlike dubbing, reference-fixing need not be understood as the semantic individuation of a term, but merely as the fixation of the referent of that term. So the latter is in principle compatible with the idea that we have a meaningful natural kind term in advance of assigning it a referent, and in principle it allows for there to be meaningful empty natural kind terms (terms that are natural kind terms and that are empty) – it thus does not entail direct reference or obstinate rigidity.

define the term ‘tiger’ by saying ‘Here is a tiger’ or ‘A tiger is anything like this’. If a term could intuitively have been introduced in this way, we have a good explanation of why it is not descriptive, but directly referential. So dubbing so-understood gives us a good explanation of why certain terms have the basic semantic properties that they do. It gives us a good theoretical reconstruction or metasemantic explanation of what is semantically distinctive about certain terms, such as natural kind terms.

Secondly, one might argue that natural kind terms are not introduced at dubbings because although we can use proper names to arbitrarily name anything at will, we cannot do this with natural kind terms. Intuitively, the latter cannot just be created at will, they have to refer to natural kinds, and not just anything is a natural kind: stipulations of referents for proper names come cheap, but not so for natural kind terms.

However, note first that Kaplan’s account of proper names is in any case inhospitable to the idea that we can create proper names at will: (Unicity) would require that there is a unique object that is dubbed using a proper name, and so creative intentions are defeasible in the case of proper names. What is true, though, is that the class of things that can be successfully dubbed with a name is bigger than the class of things that can be successfully dubbed with a natural kind term – natural kinds are harder to come by and so natural kind terms are harder to come by. But that does not seem to be a semantically significant fact. For instance Danish proper names are harder to come by than English proper names, but that does not point to any significant semantic difference between them.

Thirdly, a related objection could be that it is somehow more difficult to introduce natural kind terms than it is to introduce proper names because the former refer to complex things, things with a complex (molecular, biological, or what have you) structure, while the latter do not. One way of making this objection is by saying that the *intentions* involved in introducing a natural kind term are more complex than those involved in introducing a proper name because one intends to dub something with a complex structure.

But this is rather contentious. Consider for instance the natural kind term ‘water’. Putnam (1975) has convincingly argued that ‘water’ did refer to the kind water at the time at which it was introduced in the language, although that time was well before people had any knowledge of chemistry, or even any idea of the sort of complexity that natural kind might involve. So it does not seem that in the case of natural kind terms the intentions of the dubber(s) ought to be more complex than in the case of proper names.

Another way of making this objection from complexity is to say that dubbing a natural kind is more complex not because the intentions of the dubber(s) have to be more complex but merely because the things dubbed are more complex. Their complexity is such that, typically, it is empirical, scientific, investigation that reveals whether the dubbing has been successful – whether a unique genuine natural kind has been referred to.

However, and this is relevant to the previous paragraph, we can of course dub complex things using proper names. In particular, we can dub natural kinds using proper names, where perhaps only empirical investigation could tell whether the dubbing is successful. And we might also want to dub objects with a complex structure using proper names. For instance we might want to dub with the name ‘Alice’ (say) something which we think is a fertilised egg (i.e. a human animal); but we might fail to do so because there is no fertilised egg to be dubbed but only a bunch of cells that do not (yet) form a single organism. Only empirical investigation will reveal that the introduction of the name ‘Alice’ was unsuccessful.

So there does not seem to be significant differences between proper names and natural kind terms with respect to the way (Dubbing) applies to them. If so, the claim that natural kind terms, just like proper names, are introduced at dubbings is plausible.

The notion of dubbing as explained here also further enables us to draw a satisfactory contrast between natural kind terms and descriptive general terms. Like definite descriptions, descriptive general terms are typically made up of expressions already present in the language, so they are not as such introduced in the language. So (Creativity) typically does

not apply. But also (Unicity) is not a condition on the use of descriptive general terms: descriptive general terms can be empty or pick out several kinds, or things. A successful use of a descriptive general term such as ‘transparent liquid of which lakes are composed and which falls as rain’ does not require the existence of a unique kind.

Given the connection between (Dubbing), (Direct Reference) and (*De Jure* Obstinacy), if it can plausibly be said that natural kind terms indeed satisfy (Dubbing) and descriptive general terms do not, that means that the former satisfy (*De Jure* Obstinacy) and the latter do not. And so, again, we have got hold of a notion of rigidity that carves at the semantic joints.

5. Concluding Remarks

In this paper, I have argued that proper names and natural kind terms are distinctive in being *de jure* obstinately rigid designators. What explains that they have this semantic property is that they are directly referential terms introduced at dubbings. Dubbing is the metasemantic parameter that ultimately explains the distinctive status of proper names and natural kind terms as *de jure* obstinately rigid designators. Some descriptive general terms and definite descriptions are rigid (in some sense or other of rigidity), but given that they are not introduced at dubbings, they are not *de jure* obstinately rigid.¹⁴

¹⁴ Thanks to Brian Ball, Michael Blome-Tillmann, Geoffrey Ferrari, Gail Leckie, Hemdat Lerman, James Morauta, Bruno Whittle and Timothy Williamson for very useful discussions on a draft of this paper. Thanks also to Alexander Bird, Jane Friedman, and audiences at the *Nature and Its Classification* conference in Birmingham, at the SEFA 5 in Barcelona and at the 2007 Joint Session of the Aristotelian Society and Mind Association in Bristol. Special thanks to Helen Beebe and Nigel Sabbarton-Leary for very helpful detailed comments on the penultimate draft of this paper.

Appendix

The picture of rigidity that we get if we adopt the considerations put forward in this paper are summarised in the table below. Note that many of the expressions that appear in the squares are just standard examples for illustration. For instance, I have taken ‘water’ to refer to a necessary existent and put it in square labelled ‘I’ (*de jure* strongly obstinately rigid designator), but some might rather put it in the square labelled ‘III’ (*de jure* non-strongly obstinately rigid designator). Also, not all the expressions that figure in this table have been discussed in the paper (e.g. demonstratives and indexicals) but I included them for completeness. The aim here is just to give a general idea of how a classification of different types of rigid designators might work.

	Obstinately rigid designator	Nonobstinately rigid designator
<i>De jure</i> + strongly (originates at a dubbing + refers to a necessary existent)	‘Water’ ‘Tiger’ ‘2’ I	----- II
<i>De jure</i> + non-strongly (originates at a dubbing + does not refer to a necessary existent)	‘Aristotle’ ‘I’ ‘That’ ‘dthat’ , III	----- IV
<i>De facto</i> + strongly (does not originate at a dubbing + refers to a necessary existent)	‘The smallest prime’ ‘The actual smallest prime’ ‘Transparent liquid of which lakes are composed, and which falls as rain’ ‘H ₂ O’ , V	----- VI
<i>De facto</i> + non-strongly (does not originate at a dubbing + does not refer to a necessary existent)	----- VII	‘The actual pupil of Plato and teacher of Alexander the Great’ VIII

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