

Superficially and Deeply Contingent A Priori Truths

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In this paper, I review some standard approaches to the cases of contingent a priori truths that emerge from Kripke's (1980) discussion of proper names and Kaplan's (1989) theory of indexicals. In particular, I discuss Evans' (1979) distinction between superficially and deeply contingent truths. I shall raise doubts about Evans' strategy in general, and also about the roots and meaningfulness of the distinction.

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Kripke's discussion (1980) of proper names and rigidity resulted in some well-known examples of truths that are putatively contingent and, nevertheless, can be known a priori by speakers in the appropriate circumstances (contingent a priori truths, or simply "CATs" from now on). Since then there has been an intense debate concerning the semantic, epistemic and the metaphysical status of these truths. Kaplan's later work on demonstratives (1989) presented some analogous examples of this kind of truths, but this time involving demonstratives and pure indexicals. Kaplan's examples also generated a discussion not only concerning the epistemic and metaphysical status of these truths, but also of the notion of proper contexts of utterances.

Many critics of Kripke tend to focus on the origin of his examples, i.e., his theory of proper names and direct reference. Some of them (e.g., Dummett (1973) and Hawthorne and Manley (2010)) take Kripke's example as a sort of *reductio* of the very thesis that names are directly referential. Others explain the phenomenon appealing to some natural features of language (e.g. Kripke, Kaplan). But the most prevailing line of approach is the one in which there is some weakening of the credentials of Kripke's cases either as genuinely contingent (Donnellan (1977), Evans (1979), Hawthorne (2002)) or as genuinely a priori (e.g., Soames (2003, 2005), Salmon (1986), Plantinga (1975)).

It seems to me that each of these approaches is, in one way or another, problematic for different reasons. In this paper I shall concentrate on one particular approach outlined by Evans (1979) and taken up by Hawthorne (2002). Since this approach is to a degree scale a reaction against Donnellan's ideas on the same issue, I start by reviewing the basics of his treatment. As I shall argue, Evans' approach has some serious drawbacks.

1. CATs

Kripke famously advocated a sharp distinction between metaphysical and epistemic modalities. He criticized both the thesis that all necessary truths are knowable a priori and the dual thesis that all contingent truths are knowable only a posteriori. Both theses, according to him, derive from the confusion between metaphysical and epistemic features of propositions (modalities). A proposition is necessary if it is true in all possible worlds, and contingent if true at some possible world and false at some other possible world. Hence, necessity is a metaphysical feature of some propositions. A proposition is a priori if it can be known independently of any empirical experience, and a posteriori otherwise. Hence, a priority is an epistemic feature of some propositions. It follows that the pairs a priori/necessary and a posteriori/contingent are not intensionally equivalent. But are they extensionally equivalent? Part of Kripke's discussion is an attempt to show that, as a result of the semantic phenomenon of rigidity together with the fact that descriptions might be used to fix the reference of names without thereby becoming their synonym, some contingent truths can be known a priori, and some necessary truths can only be known a posteriori. (We shall concentrate on the first kind of truths in this paper.) Kripke offers two celebrated examples:

i. Standard Meter Bar Case: The term 'meter' (which for all purposes can be treated as a proper name of a length unit) was historically introduced by a person or group of persons (the "baptizer") as naming the length of a certain standard platinum bar (call it S). Since the length of a metal bar varies with time, let us consider 't₀' as the exact instant in which the term was introduced. The baptizer was in a position to know that the following sentence is true without any relevant experience (i.e., without having to effectively measure the bar):

(M) The length of S at 't₀' is one meter.

(M) is a true identity sentence that can be known a priori. This is so because both sides of the identity sentence refer to the same length in the actual world (since the name 'one meter' was stipulated to refer to the same object as 'the length of S at 't₀''). However, 'one meter' is a rigid designator, which means that it designates the same length in all possible worlds, while 'the length of S at 't₀'' is a non-rigid designator, which means that it might designate different lengths in differ-

ent worlds. Hence, although true in the actual world, (M) is false in a world in which the bar is not one meter long at 't₀'. It follows that (M) expresses a contingent truth.

ii. Neptune Case: In 1846 the French astronomer Leverrier, after carefully studying some small perturbations in the orbit of Uranus, was led to believe that there was a new and so far unobserved planet that should be the cause of such perturbations, and predicted the future position of it. He baptized this planet 'Neptune', that is to say, he gave the name 'Neptune' to the object corresponding to the description 'the celestial body that causes the perturbation in Uranus' orbit' (if there is actually one such celestial body). Only a couple of days after communicating his research to the Berlin Observatory, Neptune was effectively observed with a telescope for the first time. Hence, even before observing Neptune (and before having decisive evidence that the thing seen in the telescope was responsible for the perturbations), Leverrier was in an epistemic condition to know the truth of

Neptune is the planet that causes the perturbation in Uranus' orbit

Actually, since there could be no planet that corresponds to the description (Leverrier himself postulated another planet called 'Vulcan' that, as it was later discovered, does not exist), this sentence could express no proposition at all if Neptune does not exist. Hence, what Leverrier really knew a priori was the conditional

(N) If there is one and only one cause of the perturbation in Uranus' orbit, then Neptune causes the perturbation in Uranus' orbit.

Leverrier knew (N) a priori in the sense that no empirical experience (i.e., astronomical observation) was needed to know that it is true, since it came as a result of his original stipulation regarding the name 'Neptune'. One might think that a great amount of empirical observation was necessary for Leverrier to come to postulate that there is such a planet (and hence that the knowledge of (N) cannot be a priori), but strictly speaking the experience is not necessary to know (N) but only to know that its antecedent (existential claim) is true. The conditional as a whole can be known simply as a result of the stipulation.

2. *Indexicals*

Kaplan (1989) famously distinguishes between two kinds of meanings that indexicals have, namely, the character and the content. The content is the extension (or intension, depending on the perspective) assumed by an indexical in each context of utterance, while the character is a rule (or a function) that associates an appropriate extension (or intension) to each context. The content of an indexical might change from context to context, but the character remains fixed, and it is usually identified with the meaning that a speaker understands independently

of the context of use. (Two occurrences of ‘today’ on two distinct days have the same character but two distinct contents.) Kaplan also distinguishes the cognitive significance of a sentence containing indexicals from the object of thought associated with it. The bearer of cognitive significance is the character, while the object of thought is the content (which is a proposition). Two persons thinking ‘I am here today’ in two distinct days are thinking of two distinct propositions (two objects of thought), but the cognitive significance of these objects of thought, which is related to their character, is the same. Since a priori and a posteriori are epistemic properties, and since character is the bearer of cognitive significance, it is the character that is a priori or a posteriori. But contingent and necessary are metaphysical properties of propositions, and hence are related to the content. Some sentences containing pure indexicals have special characters in the sense that they produce true propositions in any context of use. Some good examples are:

I am here now.

I exist.¹

Therefore, one can know in advance that these sentences will express something true whenever employed in any context. The character is a priori if it yields true contents (propositions) in any context of use; it is a posteriori if it yields sometimes true and sometimes false contents. Nevertheless, the proposition produced in each context is contingent. Something similar happens to some sentences containing demonstratives, e.g.,

Dthat [the German chancellor in 2016]
is the German chancellor in 2016

where ‘Dthat’ is an operator introduced by Kaplan that works as a paradigm of a demonstrative, only taking as argument a definite description instead of a real demonstration. The complex ‘Dthat [the German chancellor in 2016]’ is a rigid designator of the object selected by the description ‘the German chancellor in 2016’ (which is non-rigid). We know a priori (i.e., it will be true in any context of use) that both sides of the identity must refer to the same object. But ‘Dthat [the German chancellor in 2016]’ is rigid and, hence refers to the same object in all possible worlds, while ‘the German chancellor in 2016’ is non-rigid, and might refer to distinct objects in distinct possible worlds. Hence, although the sentence yields a true proposition in any context in which it is employed, that proposition will be false at some other possible world and, hence, is contingent.

¹ Actually, this depends on some assumptions on the kind of contexts that are admissible. Kaplan only allows what he calls “proper” contexts of utterance, i.e., contexts in which the agent of utterance is at the location of the utterance, at the time of the utterance and in the possible world of the utterance. Contexts that do not have this feature are called “improper”, and need not be considered (in the same way that impossible worlds are irrelevant for modal semantics). The restriction to proper contexts is not uncontroversial. (See, e.g., Predelli 2005.)

3. *Donnellan's Criticism*

Perhaps the clearest and most influential criticism of Kripke's cases of CAT came from Donnellan (1977). This is a little ironic since Donnellan himself, along with Kripke, championed the direct reference theory of proper names. Donnellan's line of thought is that (M) and (N) could not represent genuine contingencies, i.e., be true in virtue of the way the world is. Genuine contingencies could not be known without experience and, hence, could not be known a priori. Donnellan first raises a deeper (although peripheral) concern as to whether the introduction of names by means of descriptions in fact yield, as Kripke claims, rigid designators. If the name 'Neptune' is introduced by means of the description 'the cause of the perturbation in the orbit of Uranus', this might be the result of two different processes: one of them is that the description is taken as a synonym of the name. The other is that the description merely fixes the referent of the name as being its denotation (if there is one). Now Kripke claims that:

- i. Names can be introduced in the second way, i.e., with definite descriptions playing merely a reference-fixing role;
- ii. It is part of our linguistic practices that most ordinary names are introduced in this way.

Donnellan claims that there is no way of deciding whether a name like 'Neptune' was introduced as a rigid designator (as opposed to the synonym of the description 'the cause of the perturbation in the orbits of Uranus'). His claim is based on a standard objection² against Kripke's so-called modal argument, which explores the fact that a sentence like

(A) It could be the case that Neptune is not the cause of the perturbations in the orbits of Uranus.

is intuitively true. But if 'Neptune' were synonymous with 'the cause of the perturbations in the orbits of Uranus', the sentence that follows 'that' would be a contradiction, and hence (A) would be false. The intuitive reading of (A) as true counts as decisive evidence, according to Kripke, that 'Neptune' and 'the cause of the perturbations in the orbits of Uranus' have different modal behaviors and, hence, cannot be taken as synonymous. The standard objection is that this conclusion does not follow from the fact that (A) is intuitively true. For one can reconcile the intuitive truth of (A) with the descriptive nature of the name by supposing that proper names are descriptions with a special property, namely, that of always taking primary scope. This reading of (A) would be made explicit by

(A*) The cause of the perturbations in the orbits of Uranus is such that it could be the case that it is not the cause of the perturbations in the orbits of Uranus.

² Originally made by Dummett (1973: 113–6).

Hence, Kripke's conclusion that names and descriptions cannot be equivalent would be a *non sequitur*. According to Donnellan, any appeal to differences in modal behavior of names and definite descriptions as evidence for the rigidity of the former would be open this standard objection (Donnellan call it an "evasion" (1977: 15)), i.e., that a counterfactual sentence like (A) is not decisive, since considerations of scope can always be raised as an alternative account of the intuitive reading.³

If the intuitive reading of (A) does not count as evidence for the rigidity of 'Neptune', does anything count? Donnellan thinks that nothing whatsoever at the grammatical level could indicate unequivocally that the name is rigid: only the intention of the speaker that introduces the name (in our case, Leverrier) could determine whether it is meant to be rigid or descriptive. He concludes that there is no reason to suppose that in ordinary language there really are rigid names introduced as part of normal linguistic practices. Only an explicit convention that a name should be taken as rigid would yield this effect. Hence, in the absence of an explicit convention, we could not tell whether rigid names are part of language or merely a theoretical possibility. But the mere theoretical possibility of rigid names is enough to pose a problem since it implies the theoretical possibility of sentences that would express CATs (like (N)). These considerations are independent from the thesis that names are rigid. What is under discussion is whether the rigidity of names is incompatible with the thesis that they can be taken as equivalent to definite descriptions. It is not incompatible, although names may be (and in fact are, for Donnellan) directly referential for other reasons.

Given that the introduction of rigid names by means of merely reference-fixing descriptions is at least a theoretical possibility, does this possibility imply the possibility of CATs in any interesting sense? The main point of Donnellan's paper is that it doesn't. And his argument for it starts with a distinction between (i) knowing that a sentence is true and (ii) knowing the truth that this sentence expresses. It is essential to keep in mind that the putative knowledge that one might have as effect of the stipulation, if it is not simply metalinguistic, must be *de re*. This is so because, by hypothesis, 'Neptune' is directly referential and, therefore, has no descriptive content at all. But is there such knowledge in these cases? Donnellan avoids giving a precise characterization of *de re* knowledge, but offers what he describes as two loose principles, two minimal conditions for it. Both principles are not exactly concerned with the relation between knower and the object of the knowledge, but

³ If Dummett is right, a proper name like 'Neptune' is always equivalent to a definite description, and a distinctive feature of names *qua* descriptions is that they always take primary scope (differently from ordinary descriptions, for which there might be ambiguity of scope). This feature of the corresponding descriptions would simulate the rigidity of proper names. There is hardly any independent evidence for this claim and its only motivation seems to be to get around Kripke's modal argument.

are rather conditions on the knowledge report. The first principle is roughly the following: a true report ‘S knows that n is F’ (formulated in an idiolect in which ‘n’ is a name of an object or person and ‘F’ names a property) is of *de re* knowledge only if, in any other idiolect that contains a name ‘m’ for the same object or person and a translation ‘G’ for ‘F’, the report ‘S knows that m is G’ is also true. (In other words, the report is of *de re* knowledge with respect to some object or person if its truth does not depend on the particular name for that object or person.) The second principle is the analogue for indexicals: a true report ‘S knows that n is F’ (formulated in an idiolect in which ‘n’ is a name of an object or person and ‘F’ names a property) is of *de re* knowledge only if one can substitute ‘that’ (demonstrating the same object) or ‘you’ (in the presence of the person) for ‘n’ and the new report is also true. Taken together, both principles say that *de re* knowledge of an object requires that a true report of it be insensitive to the particular name or indexical used to designate it.

Now Donnellan claims that Kripke’s Neptune case fails on the first requirement. He imagines a scenario in which there are inhabitants of Neptune having, in their idiolect, a different name for it, e.g., ‘Enutpen’, and knowing that their planet is responsible for the perturbation in Uranus’ orbit. From there they observe Leverrier through a powerful telescope (before Leverrier observed Neptune) and see that he makes the stipulation that ‘Neptune’ refers to the cause of the perturbation in Uranus’ orbits. The report ‘Leverrier knows that Enutpen causes the perturbation in Uranus’ orbit’ seems to be intuitively false in their idiolect, although the report ‘Leverrier knows that Neptune causes the perturbation in Uranus’ orbit’ is true in our idiolect. This is a sign, or so Donnellan thinks, that the truth or falsity of the later report depends on the particular name involved, and hence it cannot be a report of *de re* knowledge.

Where does the impression that Leverrier does have some sort of knowledge in virtue of the stipulation come from? What Leverrier has, according to Donnellan, is the merely metalinguistic knowledge that a certain sentence (N) is true, but not the knowledge of the truth that it expresses. The latter would require some sort of contact (acquaintance?) between Leverrier and Neptune, and hence could not be a priori.

Several other philosophers have taken a line of criticism that, although differing in the details, retain the spirit of Donnellan’s approach (i.e., that no a priori knowledge is possible in the Neptune-like cases). E.g., Plantinga (1974), Carter (1976), Schiffer (1977), Salmon (1986), Soames (2003, 2005).

4. *Evans*

Evans (1979) has an almost entirely different approach. He develops both a general and a particular strategy to deal with what he describes as the “puzzle” represented by CATs. The general strategy is supposed

to deal with all forms of CATs. And the particular is meant to deal with the specific version of it discussed by Kripke and Donnellan. Let us look at the particular solution first. It presupposes an incursion into a theory of what Evans calls *descriptive names* (i.e., names such as ‘Neptune’, whose reference is fixed by a definite description; Evans’ favorite example is ‘Julius’, which he introduces as referring to ‘the inventor of the zip’). Evans thinks that names like these are rare in ordinary language, but some cases do exist (this is an empirical claim), and this is enough to generate the puzzle. But, contrary to Kripke and Donnellan, he thinks that these names do keep their descriptive content after the reference has been fixed. The main obstacle to this claim is Kripke’s modal argument, which is based on the fact that ‘Julius is F’ and ‘the inventor of the zip is F’ exhibit different modal behavior, since in every possible world ‘Julius is not Julius’ is false, while in some possible world ‘Julius did not invent the zip’ is true. (This is just another way of saying that ‘Julius’ is rigid, while ‘the inventor of the zip’ is non-rigid.) The modal argument presupposes that if two sentences differ in their modal behavior, then they must correspond to two different propositions and, if this is so, they have two different contents. In other words, it presupposes that content and proposition is one and the same thing, and hence if two sentences correspond to two distinct propositions, they cannot have the same cognitive content. But this is something that Evans wants to challenge. The same content can correspond to two distinct propositions, one of them a necessary truth, and another one a contingent truth. He is inspired by examples like the following pair of sentences:

- (i) John is as tall as John
- (ii) John is as tall as himself

(i) attributes to John a property that some, but not all, objects have, namely, to be as tall as John. But (ii) attributes to John a different property, namely, that of being as tall as himself. In symbols, the properties attributed to John in (i) and (ii) are, respectively,

- (P) $\lambda x(x \text{ is as tall as John})$
- (P') $\lambda x(x \text{ is as tall as } x)$

Thinking of intensions as functions from possible worlds to extensions, they correspond to different intensions, since P will select, in each world, the class of objects that are as tall as John, while P' will select, in each world, the class that includes the totality of objects in that world. Anyway, Evans’ strategy presupposes dissociating differences in the modal profile of expressions such as ‘Julius is F’ and ‘the inventor of the zip is F’ from differences in the cognitive content of both: they might behave differently in modal terms and, nevertheless, have the same cognitive content.

5. *Descriptive names*

As Evans' conceives them, descriptive names are a kind of monster, similar to those mythological creatures that result from a forbidden relationship between humans and gods. For they result from the equation of expressions belonging to two entirely different semantic categories: we have a proper name like 'Julius' (with some essential properties of names, like being referential and being rigid) having its content (or Fregean sense) given by a definite description (which is neither referential nor rigid). Definite descriptions, for Evans, are not referential expressions: they are binary quantifiers. 'The inventor of the zip is British' is, according to his suggestion, similar to 'All inventors of the zip are British', 'Some inventors of the zip are British', 'Most inventors of the zip are British', etc. These can be represented by second-order operators that associate pairs of conceptual expressions to truth-values, i.e., as 'All(I, B)', 'Some(I, B)' (where I and B abbreviate 'inventor of the zip' and 'British', respectively). By parity, 'The inventor of the zip is British' has the form 'The(I, B)'. It follows that 'Julius' is actually equivalent to 'The (I, X)', which stands for a second-order operator from pairs of concepts into truth-values. So, the Fregean sense of a descriptive name in Evans' conception is not given by another referential expression (as we would expect), but is the sense of a second order operator applied to a conceptual expression. The sense of the name is, roughly speaking, a way of presenting its reference as being the unique object that satisfies the description.

The above characterization of 'Julius' as a descriptive name involves two claims: first that Julius is a referential expression and, second, that 'the inventor of the zip' (that gives the former its Fregean sense) is not a referential expression. To ground that, two questions have to be answered:

(i) How do we know that 'Julius' is a referential expression? Evans offers two reasons. The first, and most important, is that we can easily make 'Julius' fit into a minimal and general theory of reference. (The same does not hold for 'the inventor of the zip', as we shall see.) A minimal theory of reference (in the sense that it contains all that is necessary and sufficient to characterize what is essential in reference) for names (such as 'Max Freund') can be given by the homophonic clause:

'Max Freund' refers to Max Freund.

Why is this clause enough? Because it gives everything that one should expect from any adequate theory of reference, i.e., it can be combined with the notion of truth and satisfaction in order to make the following principle true:

If 'a' refers to o, and 'Fa' is atomic, then 'Fa' is true iff o satisfies 'F'

In our case,

If 'Max Freund' refers to Max Freund, and 'P(Max Freund)' is atomic, then 'P(Max Freund)' is true iff Max Freund satisfies 'P'.

In other words, no matter what the foundational reasons are for saying that Max Freund is the reference of 'Max Freund' (e.g., that it corresponds to the intention of someone using the name, or that it is causally tied to the name, or whichever theory one might have that connects Max Freund to 'Max Freund'), and for saying that Max Freund satisfies 'P', all that matters for the concept of reference, according to Evans, is that it combines properly with the concept of truth and with the concept of satisfaction. The second reason is simply an appeal to the intuition that 'Julius' is used rigidly, i.e., that we normally consider sentences like the following as false:

If you had invented the zip, you would have been Julius.

If Julius had not invented the zip, he would not have been Julius.

(ii) How do we know that descriptions are not referential expressions? Here Evans offers a meta-philosophical argument (which is different from Russell's reasons for not considering descriptions as referential; for Russell an expression is not referential if a sentence that contains it has truth conditions even under the assumption that the expression lacks a reference, which means that a sentence containing a referential expression lacks truth conditions if the expression has no reference). Assimilating descriptions into the category of referential expressions would require making some adjustments in the theory of reference in order to leave room for some phenomena that are typical of descriptions, such as their non-rigidity and ambiguity of scope when embedded in sentences containing negation (such as 'The current king of France is not bald') or modal operators (such as 'The first man in space could have been an American'), or epistemic operators (such as 'George IV wants to know whether Scott is the author of Waverley'). But this would introduce a great discontinuity and artificiality in the theory of reference, since paradigmatic referential expressions (like pronouns and ordinary names) never really take up the possibilities left open by this new (modified) theory.

6. *Free Logics and Descriptive Names*

Consider Kripke's sentence (N) again:

(N) If there is one and only one cause of the perturbation in Uranus' orbit, then Neptune causes the perturbation in Uranus' orbit.

In symbols

(N) $\exists!x Fx \rightarrow (F(n))$

'n' is supposed to be a name that is rigid and directly referential, and that's why the truth expressed by the sentence is contingent: there could be a possible world in which the antecedent is true (i.e., there is

one unique cause of the perturbation of Uranus' orbit) and the consequent false (i.e., Neptune is not the cause of the perturbation in that world). If 'n' were a description, (N) would be a necessary truth because the consequent would be a tautology. However, as Evans notices, (N) can only correspond to a proposition if 'n' refers. In the absence of a reference, there is no proposition to be known. And this is so despite the fact that, because the name is descriptive, in the absence of a reference a sentence containing it might still have a Fregean sense (and, hence, can be understood). Some sentences $W(n)$ containing the name 'n' can be true even if n does not exist (e.g., 'It is not the case that Julius is F', when there is no inventor of the zip). But, according to classical logic, we must be able to apply existential generalization in the 'n'-position, thereby getting $\exists x W(x)$, which might be false. Hence, if one wants to claim that (N) yields knowledge, one must not allow as a general rule the inference from $W(n)$ to $\exists x W(x)$ unless there is a guarantee that the name 'n' refers (i.e., that $\exists x(x=n)$), which means that one must adopt a logic that is free of existential assumptions, i.e., one must adopt some form of free logic.

Evans actually suggests something stronger, in the form of two theses:

- (i) The acceptance of descriptive names requires the acceptance of free logics (p. 166)
- (ii) The acceptance of free logics requires the existence of descriptive names (p. 173)

Both taken together imply that the assumption of free logic and the assumption of descriptive names go together, or so Evans seems to think. In other words, either (N) is formulated using a free logic (i.e., without the assumption that 'n' refers), or there is no clear candidate for the corresponding CAT. And being formulated using free logic presuppose the existence of descriptive names, i.e., names that are rigid but have a descriptive meaning even in the absence of a reference; this makes it possible that a sentence containing the name might be understood (i.e., have its truth-conditions formulated) even if there is no referent. But, as Evans points out, Donnellan is not willing to accept the existence of descriptive names in this sense. And this is so for two reasons. First, for Donnellan, even if a name has its referent fixed by a description by an explicit convention, the description does not remain attached to the name. (In other words, if there is no referent of the name, there is nothing to be understood in a sentence containing the name.) Second, and more importantly, the understanding of a name requires, for Donnellan, some sort of contact with its referent, and therefore there cannot be such understanding if the name does not refer. Hence, Evans' first point against Donnellan is, as he himself calls it, *ad hominem*: if (N) is to be a candidate for contingent a priori knowledge, then it must not allow for existential quantification in the position occupied by the name. But if this is so, one must accept free logic. But free logic (at least in

Evans' version of it) requires descriptive names, i.e., names such that sentences containing them do not depend on the existence of referents to have meaning. Donnellan does not accept such names, and so, according to Evans, he should not recognize a puzzle in the first place.

7. *Contingency: Deep and Superficial*

However deep and ingenious the reflections on reference and descriptive names are (and whether or not they yield a solution to the puzzle generated by CATs), these reflections turn out to be not strictly necessary for dealing with the puzzle, since there is a second, simpler and more general strategy, this time not coming out from a theory of reference, but from a theory of contingency. Evans introduces a distinction between superficially and deeply contingent truths. A sentence P is superficially contingent iff it is false at some possible world, i.e., $\diamond\neg P$ is true. And it is deeply contingent if a verifying fact is not guaranteed by semantics alone, i.e., by understanding the sentence one is not thereby assured that there is a verifying fact that is a "contingent feature of reality" (p. 185). If we can talk of contingency as a sort of requirement for truths, superficial contingency and deep contingency require different things. Superficial contingency requires a certain minimal modal profile, while deep contingency requires something from the truthmaker, i.e., that it is not generated by semantics alone.

Evans claims that the cases presented by Kripke are, at best, only superficially contingent, since the semantic stipulation gives a guarantee of a verifying fact for (N). (This is also presumably so for Kaplan's cases.) And all cases of superficially CATs have the same source. Since propositions are true or false at possible worlds, we might also think of them as properties that hold (or do not hold) of possible worlds, or as requirements for being true in each possible world. Now a property or requirement of this kind might be based on a contingent feature of the actual world. In this case, on the one hand it trivially applies to the actual world (because it was extracted from it) and, on the other hand, it is not a property that all possible worlds have (because it is based on a contingency) and hence does not apply trivially to any world. Let C be any contingent fact of the actual world (e.g., that the sky is blue), and consider the property (P) of possible worlds expressed by

$$(P) \lambda w(w \text{ includes } C \text{ iff } @ \text{ includes } C)$$

(where $@$ is the actual world). '@ includes C ' expresses a necessary truth, since in any possible world it will be true that $@$ includes C . The result is that this is a property that not all possible worlds have, but $@$ certainly has. Now consider a different property

$$(P^*) \lambda w(w \text{ includes } C \text{ iff } w \text{ includes } C)$$

P and P^* correspond to two properties, since the first is false of some possible worlds, but the second is true of all of them. However, Evans claims that they yield cognitively equivalent propositions when applied

to @, since both result in saying that @ includes C iff @ includes C (which is not really a new thing to know). Here, again, what is operative is the distinction between proposition and cognitive content.

This is supposed to be the general strategy for dealing with all cases of CATs, and reducing them to things that do not represent substantial, but only trivial, knowledge about the actual world. Better said: it reduces them to an attribution of a non-trivial property to the actual world that is epistemically equivalent to the attribution of a trivial property. How does this general strategy apply to Neptune-like cases (i.e., cases involving descriptive names)? For we saw that the first strategy, trading on specific features of descriptive names, was actually not strictly necessary, since there was something broader and more fundamental to solve the problem of CATs in its greater generality. Now remember Leverrier's sentence:

(N) If there is one and only one cause of the perturbation in Uranus' orbit, then Neptune causes the perturbation in Uranus' orbit.

In formal notation:

(N) $\exists!x Fx \rightarrow ([n]F(n))$

Here '[n]' is the scope indicator of the name 'n', and it has the effect of not allowing existential quantification in the 'n' position over (N), but only over 'F(n)', which is, according to Evans, a necessary condition for there being the puzzle of CATs in the first place.⁴ Let's rewrite (N) by unpacking 'n' and using '@' for the actual world. A definite description must have a position open for the possible world in which it is being considered, and 'n' has, by convention, its reference fixed by the description taken in the actual world. So (N) becomes:

$\exists!x Fx \rightarrow (F(\text{the } x F(x, @)))$

Now if we consider that 'Fx' is true or false under an assignment of x only in relation to a possible world w, we might rewrite it as a binary relation 'F(x,w)' between objects and possible worlds, and hence we have

$\exists!x F(x,w) \rightarrow (F(\text{the } x F(x, @), w))$

We might see this as a property of possible worlds:

$(\lambda w)(\exists!x F(x,w) \rightarrow (F(\text{the } x F(x, @), w)))$

This property requires of a possible world w that, if there is one and only one object that is F in w, then the one and only object that is F in @ is F in w. This property is not satisfied by all possible worlds: it is

⁴ If we had

$$[n](\exists!x Fx \rightarrow (F(n)))$$

instead, we should allow for existential generalization, i.e.,

$$\exists y(\exists!x Fx \rightarrow (F(y))),$$

but this cannot possibly be known a priori, since it involves the existence of an object with a contingent property.

false in those worlds w in which there is one and only one F , but the only object that is F in $@$ is not F in w . If this property is applied to the actual world it yields

$$\exists!x F(x,@) \rightarrow (F(\text{the } x F(x, @), @))$$

which says of $@$ that if there is one and only one F in $@$ then the one and only F in $@$ is a F in $@$. This has the same content as the application of the property

$$(\lambda w)(\exists!x F(x,w) \rightarrow (F(\text{the } x F(x, w), w)))$$

to $@$, which is a property that absolutely every possible world has (i.e., if there is one and only one F in w , then the F in w is a F in w).

We can see the intended effect leaving untouched the definite description. But if we want to follow Evans and treat it as a binary quantifier, we can rewrite

$$W((\text{the } x F(x, w), w))$$

as

$$(Ix)(F(x, w); W(x, w))$$

(where ‘ Ix ’ is the binary operator corresponding to ‘The’), and the property above becomes

$$(\lambda w)(\exists!x F(x,w) \rightarrow (Ix)(F(x, @); F(x, w)))$$

which, applied to the actual world, yields

$$\exists!x F(x,@) \rightarrow (Ix)(F(x, @); F(x, @))$$

This is, according to Evans, epistemically equivalent to the attribution to $@$ of the trivial property

$$(\lambda w)(\exists!x F(x,w) \rightarrow (Ix)(F(x, w); F(x, w)))$$

8. *Contingency and Existence*

An important aspect of Evans’ general strategy is that it does not have to appeal to a claim like the following: if a statement is contingent, it must be existentially committing and, hence, cannot be a priori at all (since matters of existence of ordinary objects are not knowable a priori). For the source of contingency is not necessarily related to the existence of objects with such and such features. There is a trivial and a non-trivial reason for this. The trivial is that there might be CATs that do not involve singular terms and, *a fortiori*, do not require the existence of anything to be true. E.g., the following sentence

All whales are mammals iff all whales are mammals in $@$.

There is no singular term here, only a universal quantifier and two conceptual expressions. Hence, its truth does not require the existence of any object. The biconditional is knowable a priori, and is contingent (because the left side of it is true in the actual world but false in some possible worlds, while right side of it is true in every possible world). The non-trivial reason is compressed in an apparently enigmatic passage:

[I]t does not follow from the fact that a sentence is contingent because it is formulated with the use of a referring expression, that its contingency is due to the contingent possession of a certain property by the object to which the expression refers. (p. 175)

Evans is thinking about a sentence like our

$$(N) \exists!x Fx \rightarrow ([n]F(n)).$$

Now, the fact that it includes a referring expression (which is, therefore, rigid) implies that

$$(N^*) \diamond(\exists!x \Phi x \ \& \ \neg[n]\Phi(n))$$

(If 'n' were not a referring expression, (N) would have been a necessary truth since the consequent of the conditional would be a necessary truth, and (N*) would be false.) Which means that it is contingent (at least superficially contingent, in Evans' sense). But because 'n' is taken with narrow scope we are not allowed to infer

$$(N^{**}) \exists y (\exists!x Fx \rightarrow (F(y)))$$

which is contingent in virtue of the fact that its truth demands the existence of an object with a specific property (i.e., the property corresponding to

$$\lambda y (\exists!x Fx \rightarrow F(y))).$$

(N**) could only be derived if the name in (N) had wide scope. So, the only existential claim allowed by free logic to follow from (N*) is

$$(N^{***}) \exists!x Fx \rightarrow (\exists x F(x))$$

which is knowable a priori.

In a nutshell: the puzzle requires that (N) is such that:

- (i) It is formulated with a name (referential)
- (ii) The name is descriptive
- (iii) The name takes narrow scope

For: (i) – if it is not a name but a description that appears in (N), then (N) expresses a necessary (and not a contingent) truth; (ii)-if the name is not descriptive, the existence or not of a proposition to be known would be dependent on a contingency (but, as it seems, a proposition cannot depend, for its existence, on a contingency); (iii) – if the name takes wide scope, it should be open to existential quantification and, hence, the proposition could not be a priori, but only a posteriori. Although (i)–(iii) are necessary and sufficient conditions for (N) being contingent, the latter is not contingent in virtue of the existence of the object corresponding to 'n'. The contingency is (only) a superficial one, due to the modal profile of (N), but not due to the existence of an object with a particular property in the world since (N) does not require such existence to be true.

9. *Some Drawbacks*

Evans' general strategy has some drawbacks. A minor one is that all cases envisaged by him involve in one way or another an actuality operator (actually P is true iff P is true in the world that is treated as actual) or reference to the actual world, which enables one to create a property that is trivially satisfied in the actual world (because it uses an empirical fact that obtains in the actual world) and not satisfied in some other world. In the same way that 'the actual DD' is a rigidified description, 'actually P' is necessarily true (if P is true in the actual world) or necessarily false (if P is false in the actual world). But reference must be made to the actual world in the shaping of such properties; otherwise we do not get the same effect. The strategy was meant by Evans to be completely general and not involving aspects belonging to a theory of reference. But the actuality operator is an indexical (indeed, a pure indexical, according to Kaplan's terminology), with all the properties that indexicals have, including rigidity and direct reference. So, the strategy is not, after all, independent from aspects of the theory of reference, and not quite as general as Evans might have thought.

A more serious drawback is that Evans' strategy relies heavily on the distinction between cognitive content and propositions. But this distinction is at best highly controversial. For it implies, in talking about the cognitive content, eschewing aspects related to modal behavior. This is not clearly reasonable, unless one sees this as anticipating (without fully articulating) Kaplan's later distinction between character and content. As we saw, in Kaplan's (1989) framework, we can explain away the strangeness of CATs by attributing distinct roles to each of these dimensions. The character is a priori (in case all propositional contents generated by occurrences of that sentence in any context are true propositions) or a posteriori (in case some propositional contents generated by that sentence in some contexts are true and some are false). And the content is the proposition generated by the character in that context, and it is the content that is contingent or necessary, according to its modal profile. If this is so, Evans can be understood as holding that all cases of CATs are due to semantic properties of indexicals⁵, and also that all CATs derived from indexicality are only superficially contingent. Hence, that there are only superficially CATs.⁶

But what if there are cases of indexical-free CATs? It seems that they would have to be treated as deeply contingent in Evans' sense. Williamson (1986) discusses an example that would have this effect. At first sight this seems to be an easy task, since sentences like (N) contain proper names but appear to contain no indexicals (provided the

⁵ Hawthorne (2002: 247) and Soames (2003: 417) seem to agree with Evans on this.

⁶ Contrary to Evans, Kaplan does not treat characters that always yield true contingent propositions in virtue of indexicals as less interesting (or superficial) than those that do not always yield true propositions. Kaplan draws no distinction between superficial and deep contingency.

verb is given a tenseless reading). But this easy alternative would not be indexical free because 'Julius' has its reference fixed with the help of a definite description taken in the actual world, and hence somehow the actuality operator (which is an indexical) is behind the name. (Since he places no restriction, Williamson seems to think that this is so for all proper names whose reference is fixed by descriptions, even those that are not descriptive in Evans' sense; so presumably he is leaving out of the picture names whose reference is fixed by indexical-free description such as 'the first prime number greater than the cardinality of the continuum'.)

Here is Williamson's example:

There is at least one believer

There is no proper name and no indexical here. The 'is' here has to be taken in its tenseless reading, for otherwise a temporal indexical would be present.⁷ Presumably one can know a priori (B), for believing it (without further empirical evidence) makes it true. And it is contingent, given that there could have been no believers. One might think that (B) can only be known by inference from

(I) I am a believer.

But (I) has the indexical 'I', and this would mean that knowledge of (B), like knowledge of 'Julius invented the zip', is also derivative from knowledge concerning indexicality. However, there is another way of deriving (B) that does not appeal to (I), namely, by means of the following principle:

(M) If there is a valid deduction of P from the premise that someone believes that P, then one is assured in believing P.

(M) is hyperreliable in that any belief acquired by employing it is guaranteed to be true. So, if one comes to believe a proposition P by just employing (M), that belief is certainly true. On the other hand, if there is a valid deduction of P from the premise that one believes P, then no empirical evidence at all is needed to know P, just believing it is enough to transform that belief into knowledge by using M. There certainly is a valid deduction of 'there is at least one believer' from the premise that 'someone believes that there is at least one believer'. Representing 'There is at least one believer' formally as $\exists y \exists x(B(x, y))$ (where 'B(x,y)' abbreviates the binary relation x believes y), we have the premise

$\exists x(B(x, \exists v \exists t B(t, v)))$

from which, by existential generalization, we get

$\exists y \exists x(B(x, y))$ ⁸

⁷ One might raise doubts as to whether the effect intended by Williamson (i.e. something being made true by someone just believing it) can be obtained by taking the verb as tenseless. I will not discuss this issue here.

⁸ We can skip here some minor complications such as the fact that the first order variables have both believers and propositions in the domain, and that the existential

and, hence, by (M), one is entitled to believe a priori that there is at least one believer. In order to deal with the objection that this might be a necessary truth (in case one takes God's existence to be necessary), Williamson proposes the following modified version of (B):

(B') There is at least one fallible believer.

Consider the premise that someone believes that there is one fallible believer. There are two possibilities for this someone who believes this: he or she might be either fallible or infallible. If he or she is infallible, then the content believed must be true, and it follows that there is at least one fallible believer. If he or she is fallible, then it follows by existential instantiation that there is at least one fallible believer.

10. *Going Deeper on Superficial Contingencies*

Williamson's example seems to show that Evans' thesis that all CATs are superficially contingent is questionable. But we can go further and question whether the distinction between weakly and strongly CATs makes sense in the first place. (And, even if it does, we can ask whether it can be motivated independently from the fact that it provides a way of discrediting CATs or whether it is simply *ad hoc*.) Evans and some of his followers (e.g., Hawthorne (2002)) seem to think that the distinction is clear enough, and it suffices to show that there can be no coherent account of cases of genuine knowledge of deeply CATs.

It is not completely clear why knowledge of weak contingency should be less interesting than that of deep contingency. (Especially if we adopt a two-dimensional semantics, like Kaplan does, and attribute cognitive significance to one of the dimensions.) From the examples given by Evans it seems that all cases of superficial contingency follow a certain pattern. We can know some superficially contingent truth about something if we consider a property by reference to this same thing. Hence, '*a* has the same size as *a*', '*a* has the same color as *a*', '*a* is as old as *a*' all state contingent properties of *a* (in the sense that not every object possess the properties that *a* has). This is no different when the actuality operator is used, since it applied in a possible world means 'as it is in this world'. Hence, somehow reflexivity seems to be the source of superficial contingencies in Evans' sense, while no reflexivity is involved in deeply contingent truths that, presumably, cannot be a priori for him. (We have seen from Williamson's example that this is probably not true.) But there are different ways of stating a property of an object by reference to itself. Some of them yield trivial properties of the object, while others yield properties that are not trivial. Evans seems to base his general approach on properties of *a* of the form

a has the same P as a.

generalization would, strictly speaking, require the previous transformation of the existential sentence in the corresponding proposition by means of a that-operator.

But now consider:

Hesperus is as large as Hesperus.

Hesperus is as large as Phosphorus.

Are they both sources of the same property? Or two distinct properties, one of them holding trivially of Hesperus? Having Kripke's example in mind, consider

Paderewski has the same DNA sequence as Paderewski.

Does it state a trivial property of Paderewski or something that one might be surprised in discovering (e.g., if one thinks that they are different persons, as in Kripke's example)? This brings us into the vicinity of Frege's problem, i.e., the problem of explaining informativeness when reference to the same object is made repeatedly. One is not guaranteed that by defining a property of an object by reference to this same object we thereby get something that is trivially known of this object, even if reference is done using the same name-type. This might depend on there being coordination in language or thought between different tokens of names.⁹

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⁹ This thesis is developed in Fine (2007).

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