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Six Names Cicero, and Why One Model Is Never Enough

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1. Rigid Designators and Kripke's Puzzle

In perhaps the most influential work on the natural language interpretation of names in recent and not-so-recent memory, Saul Kripke (1980) has argued strongly that names function in language as rigid designators, i.e. that their contribution to interpretation as used in one world is constant across all possible worlds. The analysis is strongly motivated by considerations of metaphysical modal reasoning in *Naming and Necessity*. However, as Kripke (1979) himself shows at length and in great detail, this view of the interpretation of names together with other apparently obvious assumptions leads to a puzzle in doxastic reasoning, in particular in modal contexts and contexts of belief. Kripke's view of the puzzle is that it is a puzzle, one for which there is no solution.

In this paper I re-examine the issue of how names connect with their referents. I will argue along with Kripke that a rigid designation analysis of names is required. However, I will go further than Kripke and argue that in order to capture the behavior of names in both metaphysical and doxastic modal contexts it is necessary to adopt an internalist view, one in which the denotation of a name is a mental particular. Within this view I then re-examine Kripke's puzzle about belief and show that its existence receives a natural explanation. With Kripke I accept the puzzle as a puzzle. It will not

dissolve under an internalist semantics. However, the internalist semantics developed will give a *raison d'être* for the puzzle – it is grounded in the very core of how we use models to model meaning.

The statement of Kripke's puzzle is deceptively simple. We are asked to consider an individual, Pierre, who has grown up in France as a monolingual French speaker. Like many other of his compatriots, he has heard many things about the countries and cities in his local environs, and has come to form the belief that London is pretty. We deduce this fact about Pierre from his ready assertion of and assent to French sentences such as *Londres est jolie* together with our knowledge of how to translate the French into English, in this case as *London is pretty*. As fortune would have it, at some point in his life Pierre is uprooted from France and moved to London. There he picks up English by the direct method, never translating from French. In particular, he never makes the connection between the place he comes to know as *London* and the one he knows as *Londres*. After he has lived there for a certain length of time, he comes to form the belief that the city that he lives in is not pretty. This we know from his sincere assertion of and assent to sentences like *London is not pretty* as well as from his dissent to sentences such as *London is pretty*. The puzzle comes when we then try to answer the question: Does Pierre believe that London is or that it is not pretty? Assuming that he maintained all his beliefs from when he was living in France and thus that he continues to assert and assent to *Londres est jolie*, we are at a loss to give an appropriate answer to this question without inappropriately accusing Pierre of holding obviously contradictory beliefs. We can, of course, describe his mental state very accurately. However, it seems that we cannot attribute either attitude to him.

Below we will argue that the closest we can come to resolving Kripke's puzzle is to claim that Pierre believes that London is pretty, that he also believes that London is not pretty, and that his beliefs are internally consistent but become inconsistent in translation. The translation in question, however, is not that from French to English or vice versa. It is rather the translation from Pierre's idiolect into the idiolect of someone who holds that *Londres* and *London* are distinct names for the same thing. The statements about Pierre's beliefs are not directly justifiable – the translation from Pierre's "London" to the reader's "London" is strictly

speaking illicit, as is translation from his “Londres” to the reader’s “London”. The respective statements about Pierre’s beliefs are still appropriate, however, to the extent that one can see the hearer’s “London” as the best candidate interpretation for Pierre’s two terms.

This way of analyzing the problems posed by attributing beliefs to speakers with a different ontology is an internalist one, i.e. one that locates language clearly in the head. To substantiate this view, we will first consider 6 alternative views of how to interpret names. Three of those views will be variants of the Millian view according to which the contribution of a name is simply the individual it refers to. The other three will be modeled on a Fregean view according to which a name directly denotes a sense, with satisfaction of the sense being responsible for picking out a referent. For both the Millian and the Fregean views we will entertain three alternatives, differing in whether names are part of a public language or a private language and also in whether the referent of a name is a real world individual or a token mental individual. We show that of the six combinations considered, only one can account for our intuitions about a wide range of puzzles about names. We will then show how Kripke’s puzzle about belief arises on that analysis.

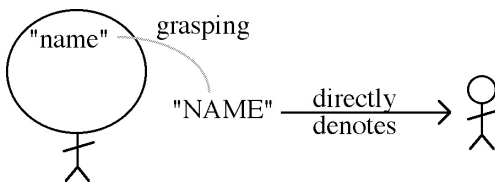
To illustrate the problems that arise, we will start with the assumption that all statements in a language are interpreted with respect to a single model. This model is assumed to contain both all possible individuals and all possible worlds. We will show that all six theories of reference run into problems under such a view. In particular, none of the theories can distinguish adequately between metaphysical modalities and doxastic modalities. We then show that one of the theories can overcome this problem by abandoning the assumption of a single model and adopting in its place the assumption of a separate model for every speaker. We then go on to show how this view of the role of models in interpretation gives a direct explanation for the existence of Kripke’s puzzle about belief.

2. Six theories of names and reference

In this section, I lay out the six theories that we will compare below. The first three theories, M1, M2 and M3, are variations on a Millian analysis that maintain that the connection between a name and its denotation is

direct, not mediated by a sense. They differ with respect to what counts as a name – a symbol of a public, common language or a symbol inside the mind – and what counts as a denotation – a real world individual (= the reference associated with the expression) or a token mental representation of an individual. While these combinations give rise to four logical possibilities, we will ignore as lacking any initial plausibility the combination in which the language is public but the denotation private. The remaining possibilities are sketched in M1 – M3 below. In separating the three theories, the distinction between denotation and reference is crucial. Mill himself took the semantic contribution of a name to be its referent. In setting out the three Millian theories, however, I am re-analyzing Mill as saying that the semantic contribution of a name is its denotation. In M1 and M2 this distinction is unimportant, since the denotation of a name is a real world referent. In M3, however, the distinction is paramount.

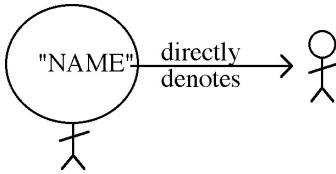
M1: Names are part of our common language, a language external to the human mind, and their semantics is exhausted by the fact that their denotation is a referent in the real world. We come to understand a name by *grasping* it. This relation is illustrated below, where CAPITALS are used to indicate the token expression of a language, and small letters are used to represent the mental counterpart of that expression that comes from having grasped it.



The main selling points of this theory are (i) that it treats language uniformly, as an abstract object independent of what is in the heads of the speakers of the language, accounting for the uniformities that are found across all speakers of a language, and (ii) that truth or falsity of a sentence in the language depends directly on facts about the world, without mediating mental representations playing any essential role. The main difficult this theory faces is that since a language on this view is an abstract

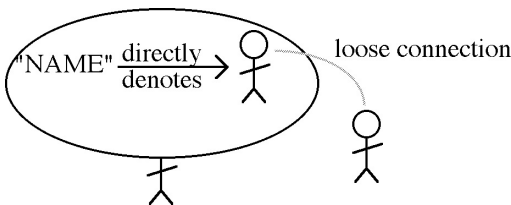
object with no directly perceivable properties, it is impossible to determine the properties that a language possesses or to set out what counts as grasping such a language.

M2: Names are in the head, but their semantics is exhausted by the fact that their denotation is a referent in the real world.



The main selling points of this theory are (i) that names are a part of language simply by being a part of whatever it is that is in the head that counts as having a language – appeal to a grasping relation relating individuals to abstract objects that are not directly perceivable is unnecessary; and (ii) that truth or falsity of a sentence in the language depends directly on facts about the world, without intermediate representations playing any essential role. The main difficulty with this view is that it is impossible to know what object a name refers to. For while we can perceive the object, we cannot perceive the fact that the object is the referent of a particular name.

M3: Names are in the head, and their semantics is exhausted by the fact that they denote a represented token individual also in the head, which is in turn (loosely) associated with a referent in the real world.

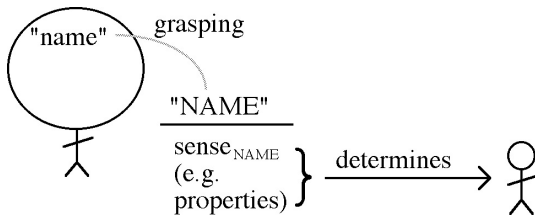


The main selling points of this theory are (i) that names can be understood without having to posit a grasping relation relating individuals to abstract objects that are not directly perceivable, and (ii) that reference can be

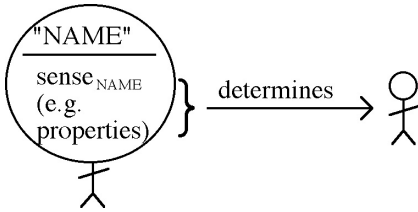
understood directly as well. The main difficulty facing the analysis is accounting for the intuition that different speakers are using the same words and talking about the same thing when they both utter a name such as John.

The three theories just examined share in common the view that the connection between a name and its denotation is direct. Frege (1948) adopted a different view of names, according to which the denotation of a name is determined instead by a sense associated with that name. While Frege himself took names to be part of a public language with denotations as part of the real world, we consider the three variations on this idea below to all be broadly speaking Fregean theories, sharing in common the idea that denotation is mediated by sense. What is to count as a sense is still an open question. For ease of exposition I consider the sense of a name to be some set of properties associated with that name, though any alternative notion of a sense could be substituted without affecting the broad categories of Fregean theories F1 – F3, sketched below. Differences between a Fregean and a Millian approach to reference aside, the main selling points and drawbacks for each of these analyses are the same as those for their respective analogues among M1 – M3, and so will not be repeated here.

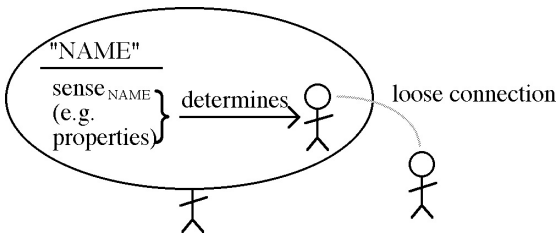
F1: Names are part of our common public language, and their semantics is given by their sense (also public) which determines a real world denotation, the referent.



F2: Names are in the head, and their semantics is given by their sense (also in the head) which determines a real world denotation, the referent.



F3: Names are in the head, and their semantics is given by their sense (also in the head) which determines a represented individual in the head (the denotation), which is in turn (loosely) associated with an individual in the real world (the referent).



In stating the selling points and drawbacks of these analyses, I have focused only on conceptual strengths and weaknesses that are easily visible on the surface. Looking at any particular class of theories among these six, many more advantages and disadvantages can be found, as we will see below.

The main point of this paper is to argue for one of these classes, namely M3, over the others based on the fact that it allows for solutions to a wide range of challenges to any theory of reference that jointly pose difficulties for all of the other classes. The challenges I will be concerned with are taken in their essentials from Kripke (1981) and Kripke (1979). It is to this task that I turn to next.

3. Kripke's challenges:

In this section I examine several challenges that Kripke poses that any theory of reference will have to come to terms with. I set the challenges out as simple yes/no questions, and give answers to those questions for each of the six classes of theories entertained in section 2. An asterisk (*) before an

answer indicates an undesirable prediction.

Challenge I: Can the sentence “Aristotle was born in Stagira” be construed by some speaker as analytically true?

No: M1, M2, M3

*Yes: F1, F2, F3

A sentence according to Kripke is analytically true just in case it is true in every possible world by virtue of its meaning (i.e. according to the meaning it actually has in the language of the speaker). The sentence “Bachelors are unmarried” is a typical candidate for an analytically true sentence. Intuitively, the sentence “Aristotle was born in Stagira” is not analytically true, and hence a positive answer to this question tells against a given theory. Such a theory can only be salvaged by stipulations that block an analytic interpretation from ever actually surfacing despite the fact that the theory allows for such a reading in principle.

This challenge poses difficulties for all three of the Fregean theories. If being born in Stagira is part of the sense of the name “Aristotle”, then the sentence will be analytically true. In F1 there is some wiggle room, since people may differ with respect to whether they grasp this fact about the language they speak. Since intuition derives from the workings of things in the head, intuition cannot be taken to give us any direct insight into (our public) language. This observation cuts both ways, of course, for it allows for the possibility that none of our intuitions inform us of the true nature of the language we speak, and if that is the case then it becomes impossible to use linguistic intuitions at all to argue about the nature of language. For F2 and F3 there is no such wiggle room – language is in the head in these theories, and so there is no obvious potential for a disconnect between language and intuition. In contrast to the Fregean theories, the three Millian theories all readily meet this challenge. Though the challenge itself does not distinguish among them, it does impose on them a distinction between the denotation of a name and the properties associated with that denotation, regardless of whether the denotation is a real world referent or a mental representation thereof. Thus, regardless of how firmly embedded Aristotle’s birthplace is in one’s belief, that property must not be a defining property of the denotation of the name.

Challenge II: Does the sentence “Cicero admired Tully” necessarily have

the same content as the sentence “Tully admired Cicero” given that in the real world Cicero = Tully, i.e. that both names have the same referent? (Assumptions: (i) the content of a name under a Millian theory is the denotation of the name. Thus, if two names have the same denotation then they have the same content; (ii) the content of a name under a Fregean theory is its sense. (iii) the content of a sentence is its intension, a function from worlds to truth values.)

No: M3, F1, F2, F3

*Yes: M1, M2

While the predictions of the six theories are clear, less obvious is which answer to count as right and which as problematic. M1 and M2 make no distinction between denotation and reference, with the name directly denoting the referent, and thus they have no way of making a distinction in content between the two sentences. In M3, in contrast, the denotation is a token mental representation while the referent is a real world individual, making possible a distinction in contents even given an identity of referents. In F1 – F3, since sense intervenes between a name and its referent, it is possible in principle for two expressions to have distinct senses that determine the same referent, and hence two coreferential names can easily have distinct contents. To answer which is superior we have to have an independent idea of what role the content of a sentence plays. I assume here that contents are, among other things, the semantic objects of attitudes. Since it is possible for someone to believe that Cicero admires Tully while consistently disbelieving that Tully admires Cicero, it will follow that the two sentences in question have distinct contents, in line with M3 and F1 – F3, and contra the predictions of M1 and M2. While this assumption is plausible, and indeed deserves to be called the default assumption regarding content, it is not the only notion of content found. In particular, Salmon (1986) and Soames (2002) both reject the notion that an apparent distinction in attitudes indicates a distinction in content. Instead, they take the central role of the content of a sentence to be that of determining the actual truth value of the sentence as uttered in the real world. Under this view of content, M1 and M2 are favored. Note that even under theories M3 and F1 – F3 it is possible in principle for two distinct names to have the same content. If the names *Cicero* and *Tully* have the same denotation in M3 or the same sense in F1 – F3, then the two sentences under consideration will necessarily have the same content. The

crucial difference between these theories and M1 and M2 is that for the latter theories the necessary identity of content is imposed absolutely, not merely as an option.

Challenge III: Is the following sentence true under a metaphysical interpretation of the modality: “It is necessary that Cicero is Tully”?

Yes: M1, M2

Possibly: M3, F1, F2, F3

I assume that metaphysical necessity is analyzed as the actual meaning of the non-modalized part of the sentence being true in all metaphysically possible worlds. On this assumption, the statement in question will be true just in case the proposition that Cicero is Tully (as these names are actually construed) is true in all metaphysically possible worlds. In theories M1 and M2, where the contribution of the names to the proposition is simply the real world individual that is their mutual referent, this reduces to the question of whether self-identity is metaphysically necessary, something it would be hard to deny. In M3 we have the added complication of determining what counts as a relevant possible world. Two alternatives present themselves – (i) that possible worlds represent ways that real world objects (and non-actual but potential objects) can be related to one another, and (ii) that they represent ways that token mental individuals, including the denotations of names, relate to one another. If we agree that the names Cicero and Tully share the same referent even if they fail to have the same (mental) denotation, then M3 will be in the same boat as M1 and M2 under possibility (i), though not under possibility (ii). In particular, if the (mental) denotations of the two names differ in this latter case, then the original sentence will be false. On the assumption that the sentence in question should come out true, it follows that for M3 to be plausible one of two things must obtain: either what is relevant for the analysis of metaphysical necessity will have to be the referents of the names, not their denotations, or the two names will have to share their denotation.

Under theories F1 – F3, as Kripke showed in blistering detail, equating meaning with sense fails miserably, since holding the senses of two names constant across worlds does not entail holding their denotations constant as well, allowing the two names to co-denote in some worlds and not in other worlds. Such a view makes the sentence in question false unless it is maintained that the names *Cicero* and *Tully* have the exact same sense, an

implausible view that would undermine the Fregean analysis of differences in propositional attitude toward Cicero and Tully. As with M3 we could consider taking the meaning in question to be at the level of reference, not sense (nor, in F3, denotation). This would involve, e.g., analyzing metaphysical necessity in terms of a certain state of affairs obtaining in all possible worlds rather than in terms of a certain meaning for a sentence coming out true at those worlds. The changes such a move would impose on the theories in question, however, are vast. Content of a sentence could no longer be analyzed as a function from worlds to truth values but would rather have to be something like a situation or event. Whether such a theory can be plausibly constructed remains to be seen.

The challenge given above presupposes that Cicero is in fact Tully. Our different theories under consideration, however, have different ways of understanding this identity. For the 1 and 2 theories, the identity is of referents. For the 3 theories (M3 and F3) it could equally well be of denotations. This makes the question itself somewhat vague. We can shore the question up by including the assumed identity as part of the sentence under consideration as follows. Is the following sentence true: “If Cicero is Tully, then it is (metaphysically) necessary that Cicero is Tully”? For this question, the answers provided by the various theories under consideration are the following:

Yes: M1, M2, M3

*No: F1, F2, F3

This sentence should come out as true, since when the antecedent is true the consequent entails that a certain self-identity is metaphysically necessary. The addition of the *if*-clause adds nothing to theories M1 and M2. Under these theories the *if*-clause denotes a necessary truth, and hence the truth of the whole statement reduces to the truth of the consequent clause. For theory M3, in contrast, it adds something very important. In particular, if we take the identity between Cicero and Tully to hold at the level of denotation for both the *if*-clause and the consequent, then the statement becomes straightforwardly true. It requires for its truth only that an identity between denotations holds necessarily, which it will provided that the identity holds at all. For Fregean theories in contrast, an identity statement holds that the senses of the names pick out the same denotation. For theories F1 and F2, since the denotation is identified with the referent, the addition of an *if*-clause is essentially superfluous. This is because the *if*-

clause adds nothing that wasn't already assumed in the previous case examined. In F3, in contrast, there is a potential for the *if*-clause to make a difference. On this theory the *if*-clause adds the premise that the mental denotations of the names are identical. Still, however, the identity cannot be seen as necessary in the sense that it will not hold in alternative worlds in which the denotations picked out by the senses of the names diverge. There are still worlds in which the senses of *Cicero* and *Tully* are identical to what they are in the real world but in which their denotations differ.

Challenge IV: Are the following sentences necessarily true under a de dicto interpretation given that Cicero is Tully in the real world: “John believes that Cicero was Roman”, and “John believes that Tully was Roman”?

No: M3, F1, F2, F3

*Yes: M1, M2

The notion of a de dicto attitude attribution is one that is hard to make sense of in theories M1 and M2. In theory M1, there is only one language, the public language, meaning that different people's utterances of a sentence of that language come out synonymous on this theory. Thus, John's utterance of (or belief in) the sentence “Cicero was Roman” is utterance of (or belief in) the content of that sentence as a sentence of the public language. Since the content of this sentence under M1 is identical to the content of “Tully was Roman” under M1, there is no room for even making a de re / de dicto distinction between these sentences on this theory. The best one could hope to do would be to create such a distinction within a speaker's grasping of a sentence, since different people can have different ways of grasping the same sentence. However, such a move essentially abandons the central tenet of this theory – that language and hence meaning are public, not private. The situation is no better under M2. Given the assumption that the two names are co-referential, the referents of the two names will be identical for any speaker, hence once again making it impossible to even generate a de re / de dicto distinction within the language. M3 contrasts with M1 and M2 in that real world identification of the referents of the two names does not ensure identity of their denotations. This makes it possible for two speakers to differ with respect to whether the two names share their denotation or not even when the names are associated with the same real world referents. In such a situation, the two

sentences are predicted to possibly differ in truth value for a given speaker, depending on whether the denotations of *Cicero* and *Tully* differ for that speaker. For theories F1 – F3, the difference in the truth values for the two sentences under consideration is guaranteed by the fact that the senses of the two names can differ combined with the assumption that belief relates a speaker to a sense.

Challenge V: Can “Cicero was Roman” be translated as “Tully was Roman” without fear of mistranslation given that the real world referents of the two names are the same?

No: M3, F1, F2, F3

*Yes: M1, M2

For M1 and M2, identity of reference guarantees identity of content. There is thus no way that the translation between the two sentences could be taken as a mistranslation. For M3, in contrast, identity of reference does not entail identity of content, meaning that it is possible in principle for the two sentences to have distinct contents even if their referents are guaranteed to be identical. For F1 – F3 similar comments apply. Identity of reference does not guarantee identity of sense. If proper translation involves maintaining sense, then it is once again possible for the translation to be a mistranslation even if the real world facts determined by the two sentences are identical.

Challenge VI: Are “Cicero must have been bald” and “Tully must have been bald” equivalent as doxastic modal statements if the referents of *Cicero* and *Tully* are the same? This depends on an account of doxastic modals, which Kripke hasn't given. However, if doxastic modals depend on the senses and denotations of names, then:

No: M3, F1, F2, F3

*Yes: M1, M2

These answers assume that an analysis of doxastic modals depends on the contents of the names, i.e. on their sense (F1 – F3) or denotation (M1 – M3). The two sentences will be true if in all possible worlds compatible with the beliefs of the speaker, the real world content of the name contained therein determines / is a bald individual. For M1 and M2, the identity between Cicero and Tully holds in the real world, and hence on the assumption that names are rigid designators it holds in all possible worlds. Thus, there can be no possible world in which Cicero has a property that

Tully lacks or vice versa, guaranteeing the equivalence of the two modal statements. In M3, though the names co-refer, whether they also co-denote can vary from speaker to speaker. If the possible worlds relevant to doxastic evaluation are taken to be those derived from individuals at the level of denotation rather than of reference, then the equivalence will at most hold for speakers who identify Cicero and Tully.

Challenge VII: Is “Cicero must be Tully” guaranteed to be true as a doxastic modal statement?

No: M3, F1, F2, F3

*Yes: M1, M2

The reasoning here should by now be familiar. In M1 and M2, since Cicero is Tully there is no possibility of Cicero not being Tully, i.e. no world in which the self-identity that obtains in the real world fails to hold. The sentence “Cicero must be Tully” thus ends up as true regardless of how *must* is interpreted – since the identity holds in all possible worlds whatsoever, it follows that it also holds in any subset of possible worlds. In contrast, in M3 we have the option of analyzing the modality in terms of worlds constructed from denotations, which are in the head. This makes it possible for the identity between Cicero and Tully to fail to hold. If the speaker associates these names with distinct individuals, then it follows that in no possible world will the actual denotations of these names be identical. In F1 – F3, as long as the senses of the two names differ it follows that there will be worlds in which these senses determine distinct individuals. If some of these worlds are among a speaker’s belief worlds then the sentence will not be true.

4. Facing the Challenges

We have seen above that of the six theories of the interpretation of names examined, only one stands a chance of surviving all of the challenges laid out by Kripke, namely M3. However, in order to do so, it has to be able to distinguish between denotation and reference in a way that makes it possible to analyze doxastic modal statements and metaphysical modal statements with respect to different sets of individuals. Under a standard implementation of a possible world semantics this is not possible. Such an approach recognizes only a single model, in which the individuals related

in the various worlds of the model are fixed once and for all as the domain D of individuals. These individuals can exist in any of the possible worlds of the model. They are (or rather subsume) the individuals rigidly designated by names. The problem is that within a single model, if two names rigidly designate the same individual in one world, they will also rigidly designate that same individual in all worlds. It isn't possible to separate out metaphysically possible worlds in which two names co-designate from doxastically possible worlds in which they do not.

If we accept that true identity statements are metaphysically but not doxastically necessary, and if we agree that names rigidly designate, then we have no choice but to conclude that what a name designates in metaphysical reasoning differs from what it designates in doxastic reasoning. The simplest way to derive this conclusion is to assume that interpretation is always done not with respect to a single model but rather with respect to at least two models. We can label these a Belief Model and an External Model. The former is conceived of as belief dependent, and the latter as belief independent. This distinction shows up in the conception of the individuals contained in the two models. Those in the External Model are typically taken to be the individuals of somebody else's Belief Model. To get at the way the world really is, we can take this somebody else to be a hypothetical individual who is assumed to have a correct view of the world with respect to the topics under discussion. Those individuals in the Belief Model, in contrast, are the posited mental individuals we use to represent real world individuals as we see them. Since we can only model reality based on our beliefs of what reality is like, the External Model cannot be identified with reality itself. It can contain whatever real individuals we know of, but since we can be mistaken about what individuals there are and we can imagine a whole range of possible individuals who are not actual, the External Model can't help but differ from reality. This is a good thing, of course, if the External Model is to be used for (metaphysical) modal reasoning, since were it an actual model of reality it would contain only one possible world – the real one – and necessity and possibility would collapse into one.

One of the advantages of using a single model is that identity relations across worlds come for free. Within the model, the individuals that appear in the various worlds are the individuals of the domain, with one individual

capable of existing at multiple worlds. Once we add a second model, we lose this advantage. In particular, identification of an individual in one model with an individual in another can only be stipulated. In this way, identity across models is very close to Lewis's (1968) notion of counterparts across worlds under a conception of possible worlds as real. We are in a somewhat better position than Lewis, however, in determining which individuals to connect to which, since at least a large number of our Belief Model individuals can be taken to be causally connected to External Model individuals through perception. When we are introduced to someone and told his name is John, we identify an External Model individual (in the Belief Model of the speaker) as John and an individual in our own Belief Model as John, and we stipulate a trans-model identity between the individuals. In cases where everything works correctly this trans-model link is in a sense correct in that it allows for unfettered communication. This view allows for mismatch as well, however, in cases in which the knowledge of the two individuals differs. For example, two people may both be introduced to Cicero and to Tully through a text book that perhaps only one of them read to its conclusion. If the fact that Cicero is Tully is restricted to the part read by only one of them, then their separate Belief Models will differ in the individuals they contain: separate Cicero and Tully for the incomplete reader, a single Cicero / Tully for the other. Identification of individuals across models in this case will be bound to fail, since there is no way that two distinct individuals can each be identical with a third without thereby being identical to each other. The best we can do is to choose a particular identification for a particular purpose.

We can now see why Kripke's Puzzle about belief has no proper solution. The puzzle sets up a situation in which two individuals – Pierre and the reader – construct mutually incompatible Belief Models. Where Pierre's Belief Model contains two objects, London and Londres, the reader's Belief Model contains one, which we'll call LONDON. When asked what Pierre believes about LONDON, we take (what we know about) Pierre's Belief Model to be our External Model and try to identify individuals from that model with individuals in our own Belief Model. However, we cannot make an identification between LONDON in my Belief Model and both London and Londres in Pierre's since these latter

two objects are by assumption non-identical. The best we can do is to stipulate a cross-model identity between, e.g. London and LONDON, accepting that this precludes an identification between Londres and LONDON. However, we can have no justification for choosing London over Londres as a universal cross-model counterpart of LONDON. At most we can make an interest-relative stipulation to this effect, accepting that the identification may work for some purposes but is doomed to fail for others. Deciding that all of Pierre's beliefs about London in some sense count as beliefs about LONDON, and that all of his beliefs about Londres do too, is no better a solution to trying to represent Pierre's thoughts in our own model. Such a decision would do an injustice to Pierre that he does not deserve. To his mind it would be no better than taking his beliefs about London and his beliefs about Paris to be identified as beliefs about the same object. That this assumption makes Pierre's beliefs come out as contradictory would be entirely unsurprising. It fails to show any internal contradiction in Pierre's beliefs, however. To conclude that Pierre contradicts himself it would be necessary to have a guarantee that the cross-world identification is correct, and no such guarantee can ever be given. Cross-model identity simply is not the same as cross-world identity within a model.

The picture that I have come to in this paper is one in which there are multiple models used for interpretation. More specifically, I have suggested that each speaker forms her own model for interpretation while simultaneously creating potentially distinct models for modeling the beliefs of other people. From a psychological perspective, this puts semantics clearly in the I-language category. The apparatus that the speaker employs to interpret other speakers simply is the semantics of that person's language. If this view of semantics is correct, it places the language acquisition problem for semantics into the same boat as that for syntax, phonology, morphology and other aspects of language, and suggests that the solution to that problem is parallel: the fact that all speakers employ a nearly identical semantic structure for interpreting one another derives from our common biological underpinning for language.

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