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Reference, Binding, and Presupposition: Three Perspectives on the Semantics of Proper Names

Emar Maier

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Abstract Linguistics and philosophy have provided distinct views on the nature of reference to individuals in language. In philosophy, in particular in the tradition of direct reference, the distinction is between reference and description. In linguistics, in particular in the tradition of generative grammar, the distinction is between pronouns and R-expressions. I argue for a third conception, grounded in dynamic semantics, in which the main watershed is between definites, which trigger presuppositions that want to be bound, and indefinites, which set up new discourse referents. On this view, proper names, indexicals, and definite descriptions are all analyzed as presupposition triggers.

Keywords Reference · Proper names · Pronouns · Semantics · Presupposition

1 Introduction

In this paper I compare three distinct conceptions of the meaning of proper names. I first present the view that the semantics of names is captured by their being rigid designators. On this view, names pattern with demonstratives and indexicals (*this*, *I*, *tomorrow*), but contrast with definite descriptions (*the president*, *his best friend*). Next, I present the generative linguist's view that names are full referential noun phrases, and as such are opposed to pronouns, which represent free or bound variables in the logical form. On this view names pattern with definite descriptions, but differ from personal pronouns (including referential indexicals like *I*). Finally, I present the dynamic treatment of names as presupposition triggers. On this view, all definites (including names, pronouns and definite descriptions) are lumped together,

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and are contrasted with indefinites (*a man*).

A thorough comparison between the three approaches leads me to eventually propose a hybrid of the dynamic and rigid designator views. I maintain here that names, like other definites, are presupposition triggers: uttering *John* triggers the descriptive/quotational presupposition that there is someone named *John*. I flesh out my proposal for a presuppositional theory of names in a novel variant of the dynamic framework of Discourse Representation Theory that properly incorporates also a theory of rigid designation.

2 Names as Rigid Designators

A definite description like *the president of France* refers to a certain individual, François Hollande, but when evaluated at other times or in other possible worlds it will pick out someone else, like Ségolène Royal or Nicholas Sarkozy. In formal semantics, we exploit this world-time dependence of the description to capture the contingency of identity statements like *Hollande is the president of France*: although the statement is true in the actual world, it is false in many others.

Frege (1892) and Russell (1905) held that proper names (*Hollande*) refer in the same way, i.e., in every evaluation world they pick out an individual. The difference between definite descriptions and proper names is merely that in the case of proper names the descriptive material used to identify a referent in a given world is not visible on the surface. On their view, the name *Hollande* thus abbreviates a longer definite description such as *the 24th president of France, born in 1954, co-prince of Andorra, ...*

Kripke (1980) famously argued against analyzing names as hidden descriptions. For Kripke, names are not descriptions but labels for specific individuals inhabiting our world. These labels are assigned to existing individuals via an act of baptism, and the use of the name to refer to that individual is passed on via a causal chain of communication. It is via such a chain of communication that my utterance of *Hollande* refers to its bearer, regardless of what descriptive information a user of the name may associate with it. Kripke cashes out the semantic difference between names and descriptions in possible worlds semantics: descriptions pick out different individuals in different possible worlds, depending on who satisfies the description there, while names are *rigid designators*, i.e., they pick out the same individual, the actual person so baptized, in every possible world.

To argue that *Hollande* is not simply synonymous with the description *the president of France and co-prince of Andorra*, Kripke offers a number of arguments. I will discuss the two most important ones below.

First, it may well turn out that Hollande's co-prince title is due to a clerical error. Did we discover then that *Hollande* doesn't refer or refers to someone else? No, says Kripke, in such a case, sentences containing the name are still saying things about the same actual individual—all we have discovered is that he lacks certain properties that we previously thought he had, and hence that, for instance, (1) turns out to be false.

(1) Hollande is co-prince of Andorra

In other words, the truth or falsity of (1) can only be known *a posteriori*, by considering what the world is like, not by mere reasoning or looking in a dictionary. However, on the description theory, it is part of the meaning of the name that its bearer is co-prince and president, making (1) an *a priori* knowable, analytic, and necessarily true statement (like *bachelors are unmarried*).

Kripke's second argument concerns the modal status of (1). Even if (1) is in fact true, the truth it expresses is merely a contingent one. There are many worlds in which it would be false, e.g., worlds where Hollande manages to give up his co-prince title, or perhaps one where the kingdom of Andorra ceases to exist by incorporation into Spain. Now, as pointed out above, the description theory incorrectly predicts (1) to express a necessary truth, because in every possible world the individual picked out by the hidden associated description *the president of France and co-prince of Andorra* picks out someone who is co-prince of Andorra.

Both arguments seem to apply to any properties of Hollande one might want to include into the meaning of a name. Thus, for instance, the a prioricity argument successfully defeats description theories of the kind envisaged by Frege and Russell. But in fact the argument does not extend to some of the more slimmed down quotational description theories which analyze *Hollande* as *the person called Hollande* (Kneale 1962). This is because, arguably, knowing the truth of a statement like (2) does not require any empirical justification: uttering (2) is like a self-fulfilling prophecy, by saying it you are calling him thus, which makes it true¹:

(2) Hollande is called *Hollande*

However, Kripke's modal argument can still be leveled against Kneale. The quotational analysis of names would predict that (2) expresses a necessary truth, while in fact it expresses a contingent truth. After all, there are possible worlds where, for instance, Hollande's parents change their minds at the last minute and decide on a different name for their baby boy, leading to a world wherein Hollande bears and is known under a different name.

So, what *is* the correct semantics of proper names? To do justice to the intuitions appealed to above we assume that names pick out an individual in the actual world, regardless of the world at which we're evaluating. Semantically, we just stipulate that *Hollande* refers to its actual bearer, Hollande, regardless of the world of evaluation.

3 Names as R-Expressions

3.1 Generative Syntax: Binding Theory

A central component of modern linguistic theories of the syntax–semantics interface, is the part that deals with the distribution and interpretation of pronouns.

¹ Cf. Kaplan's (1989) claim that *I am here now* or *I am speaking* are contingent but knowable a priori (where *a priori* is formally defined as true in every utterance context).

Such a component is typically called a “Binding Theory”. The primary goal is to account for important contrasts between reflexives, pronouns, and full noun phrases like proper names and definite descriptions. For example, we have *John likes himself*, but we can’t replace the object with a name or pronoun referring to John (**John likes {John/him}*). Yet, in another syntactic environment, only the pronoun is acceptable (*John met somebody who likes {*John/him/*himself}*). Under certain syntactic conditions, even names and descriptions can be used to mark coreference, as in *John’s father likes John*.

How Binding Theory explains these and other distribution facts from syntactic (and/or partly semantic) principles, is not our primary concern here. What’s important to note is that these theories all start by dividing singular terms into three distinct word classes:

- (3) a. reflexives: *himself, myself, themselves, ...*
- b. pronouns: *I, you, she, we, my, their, ...*
- c. R-expressions: *John, the winner, that guy over there, my best friend...*

In generative grammar, semantics is built on top of syntax, in the sense that syntactic primitives are semantic primitives, and each syntactic composition rule comes with a corresponding semantic composition rule. So we expect that this neat syntactic categorization should have a direct analogue in semantics. However, as we will see in the remainder of this section, both pronouns and R-expressions seem to cover a variety of semantic functions (referential, bound, perhaps even descriptive), so the relationship between syntax and semantics here is not entirely straightforward. Reflexives do not play a role in the comparison with other semantic theories considered in this paper, so we’ll ignore them from here on.

3.2 Generative Semantics: Pronouns as Variables

Traditionally, in semantics third person pronouns are logically represented as bound variables, while names are represented as individual constants.

- (4) None of the guys thinks he’s better than Mary
 $\neg \exists x(\text{guy}(x) \wedge \Box_x(\text{better}(x, m)))$

Note that we’ve already discussed one important semantic difference within the class of R-expressions, viz. between names and descriptions in Sect. 2. For now, let’s focus on the pronouns. We need not look far to see that not all third person pronouns can be described as bound variables. With some stress, or an accompanying pointing, they can be used referentially²:

- (5) I think SHE killed him

Looking beyond the third person, it is clear that for first and second person singular this referential use is the default, if not the only, mode of reference. For this reason, philosophers of language generally group first and second person with proper

² For third person pronouns this is commonly called the pronoun’s demonstrative usage.

names, rather than with unstressed, bound third person pronouns like (4).

In defense of a strict, semantic separation between pronouns and full NPs, the standard move in generative semantics is to interpret pronouns uniformly as variables, which may be either free or bound,³ thus characterizing them semantically as a “natural class” (Schlenker 2004) after all. In the remainder of this section I will flesh out this proposal in some detail.

The basic idea is that bound uses correspond to bound variables, a we’ve seen above, while referential uses correspond to free variables. These free variables get their referents assigned by an assignment function f , which thus should be seen as a partial representation of the extralinguistic context:

- (6) [logical form of (5)] $\Box_x(\textit{killed}(y, z))$
 [semantics] $\llbracket \Box_x(\textit{killed}(y, z)) \rrbracket^f = 1$ iff $f(x)$ thinks $f(y)$ killed $f(z)$

This correctly makes the reference of referential pronouns (*I*, *SHE* and *him*) dependent on the context, as represented by the function f .

But this is not quite right yet. We have completely ignored important linguistic information concerning person, gender and number, contained in the pronouns. The *I* in (6) must refer to the speaker of the sentence, and *SHE* to some salient female person distinct from both speaker and addressee. To capture these restrictions we interpret them as *definedness conditions*. More specifically, pronouns are variables which only receive their interpretation from an assignment f if the descriptive conditions they carry about person, number and gender are fulfilled. For example, we represent *I* in the logical form as $x^{1.sg}$, and stipulate that $\llbracket x^{1.sg} \rrbracket^f$ is undefined unless $f(x)$ is the current speaker. For completeness, here’s the precise definitions of the representation and semantics of a third person pronoun:

- (7) [logical form] $\textit{she} \rightsquigarrow x^{3.sg.fem}$
 [semantics] $\llbracket x^{3.fem.sg} \rrbracket^f = f(x)$ if $f(x)$ is female, and $f(x)$ is neither the speaker, nor the addressee; undefined otherwise

To let the truth definition deal with undefinedness, simply assume that whenever the semantic value of any term inside a larger expression is undefined, the semantic value of the entire term is undefined.⁴ If we’re dealing with a free pronoun, the features put restrictions what counts as an appropriate context of utterance for a sentence containing pronouns. Concretely, we predict that an utterance of (6) is infelicitous in a context where $f(y)$, the intended referent of *SHE*, is a man.⁵

³ This treatment is for instance found in the influential textbook of Heim and Kratzer (1998). Note that linguists often talk about *indices* (i, j) rather than variables (x, y).

⁴ If we interpret undefinedness as a third truth value, this amounts to assuming a Weak Kleene logic for undefinedness, i.e. undefinedness always projects.

⁵ It is tempting to describe the undefinedness above as presupposition failure. Indeed, the current treatment of pronominal features coincides with some early accounts of presupposition projection (cf. Strawson 1950, or even Frege 1892). As we’ll see below, presupposition is actually a more complex phenomenon, so I refrain from using the term presupposition for the simple inheritance of undefinedness

3.3 Donkey Pronouns

An important omission from the system above are cases of cross-sentential binding and donkey sentences:

- (8) a. There's a girl walking in the park. She looks happy.
 b. If a farmer owns a donkey, he beats it

The pronouns here are not really referential in the sense that there need not be some extralinguistic entity in the real world that they refer to (with the help of, say, a pointing or head nod). But they are not syntactically bound either.⁶

The so-called E-type strategy for dealing with such pronouns is to analyze them as going proxy for a hidden definite description, i.e. *she = the girl walking in the park; he = the farmer, it = the donkey* (Evans 1977; Heim 1990). It may be possible to derive the right predictions about the examples in (8),⁷ but it does require postulating some invisible ambiguity in the class of pronouns: some are variables, some are actually R-expressions. Clearly this move detracts from the claim that pronouns form a natural semantic class that is distinct from the class of R-expressions (which contain overt definite descriptions).

There is an alternative treatment of the phenomena in (8), which essentially redefines variable binding to cover both syntactic cases like (4) and donkey cases. This is the route of dynamic semantics that I will be pursuing in the next section.

4 Names as Presupposition Triggers

4.1 Dynamic Semantics

In the 1980s, Hans Kamp and Irene Heim initiated what is sometimes referred to as the “Dynamic Turn” in semantics. Above, we have been concerned with classical, static semantics, where meaning equals truth conditions. More precisely, in neo-Fregean fashion, these meanings are modeled as propositions, explicated in terms of truth and falsity across possible worlds, in turn dependent on reference of the sentence constituents in those possible worlds. Context only plays a role in determining what propositions get expressed. In dynamic semantics, the dependence between context and interpretation goes both ways: the context does not just affect interpretation, it is also affected in a systematic way by a interpretation. Following ideas of Stalnaker (1978), the goal of communication is to negotiate information

Footnote 5 continued

that is assumed to capture the behavior of pronominal features in the tradition of semantics in generative grammar.

⁶ Unless, that is, we'd be willing to accept blatantly non-compositional measures, such as re-opening brackets at sentence boundaries, or interpreting some occurrences of the overt existential *a donkey* as universal quantification.

⁷ So-called Bishop sentences (*If a bishop meets a bishop, he blesses him*) are decidedly harder to deal with in terms of E-type pronouns. Cf. Elbourne (2006) for an attempt.

growth in the common ground between speaker and hearer, i.e. the context. The goal of uttering a sentence in a given context, is to change that context. The task of dynamic semantics is to associate with each sentence an appropriate context change potential.

As far as reference to individuals is concerned, there are really two fundamentally distinct types of expressions in dynamic semantics: indefinites, which introduce a new subject or “discourse referent” into the context under construction, and definites, which do not change the context but merely pick up previously established discourse referents. Prototypical indefinites are *somebody*, *a man*, or *three women*; definites include at least definite descriptions (*the man*, *my best friend*) and third person pronouns (*he*, *her*).

In (9), the indefinites *a woman* and *a dog* create new discourse referents in the context, which we can now say more about in subsequent sentences.

(9) There’s a woman walking a dog.

If we want to say more about this woman we have to pick up this discourse referent with an appropriate definite.

(10) {She/the woman/this woman} is happy

As far as dynamic semantics is concerned, the three choices of definite in (10) have the same effect: they identify the right discourse referent and add the information that she is happy.

However, there is more to the interpretation of various subclasses of definites than just picking up old discourse referents. I will argue below that what unifies all definites is that they are *presupposition triggers*, i.e. *the man* triggers the presupposition that there exists a man, while *she* presupposes the existence of a female singular, third person individual. By the classic tests for presuppositionhood, these presuppositions should survive embedding under negation (and other operators); but may be canceled/filtered in certain environments. That is, both *The King of France is bald* and *The King of France is not bald* presuppose the existence of a King of France, but *If France has both a king and a queen, the King of France is bald* does not.

Below I will sketch a more precise formalization of presupposition in the dynamic framework of DRT.

4.2 Discourse Representation Theory and Presupposition

In Kamp’s Discourse Representation Theory (DRT), contexts and context change potentials are represented as Discourse Representation Structures (DRSs). A DRS is a formal object containing two parts, a set of discourse referents, and a set of conditions that express information about these discourse referents. Interpreting an indefinite like *a woman* leads to the introduction of a fresh discourse referent (x), while the descriptive information that it is a woman is represented as a DRS condition.

Let me illustrate with the example discourse above. We start with an empty DRS, i.e., nothing is assumed common ground prior to the discourse. The first sentence to be interpreted is (9) (*there's a woman walking a dog*). This sentence introduces two discourse referents and predicates that the first is a woman and the second a dog she is walking:

(11)

x	y
woman(x)	dog(y)
walk(x,y)	

The sentences following this one takes the output of the interpretation of the first sentence, (11), as input. Let's take the definite description variant of (10), *the woman is happy* to illustrate the basics of Van der Sandt's (1992) presupposition-as-anaphora framework.⁸ Interpretation in this framework starts by adding a *preliminary DRS* to the context. In the preliminary DRS, we mark the content of a definite description or a pronoun as presupposed (graphically: we put the existential propositions they presuppose in a dashed box). So, while *a woman* in (11) was represented as introducing a discourse referent and condition into the context DRS, thereby asserting that there exists a woman; *the woman* introduces merely a presupposition that needs to be resolved before it is interpreted. When a preliminary DRS is completed, we add it to the input context and resolve the presuppositions by identifying matching antecedents. In this particular example we have the contextually given *x* who is a woman matching the presupposition that there is a woman *z*, so we bind *z* to *x*:

(12)

<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">x</td> <td style="text-align: center;">y</td> </tr> <tr> <td>woman(x)</td> <td>dog(y)</td> </tr> <tr> <td colspan="2" style="text-align: center;">walk(x,y)</td> </tr> <tr> <td colspan="2" style="text-align: center;">happy(z)</td> </tr> <tr> <td colspan="2" style="text-align: center;"> <div style="border: 1px dashed black; padding: 2px; display: inline-block;"> z </div> </td> </tr> <tr> <td colspan="2" style="text-align: center;"> <div style="border: 1px dashed black; padding: 2px; display: inline-block;"> woman(z) </div> </td> </tr> </table>	x	y	woman(x)	dog(y)	walk(x,y)		happy(z)		<div style="border: 1px dashed black; padding: 2px; display: inline-block;"> z </div>		<div style="border: 1px dashed black; padding: 2px; display: inline-block;"> woman(z) </div>		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">x</td> <td style="text-align: center;">y</td> </tr> <tr> <td>woman(x)</td> <td>dog(y)</td> </tr> <tr> <td colspan="2" style="text-align: center;">walk(x,y)</td> </tr> <tr> <td colspan="2" style="text-align: center;">happy(z)</td> </tr> <tr> <td colspan="2" style="text-align: center;">z=x</td> </tr> </table>	x	y	woman(x)	dog(y)	walk(x,y)		happy(z)		z=x		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">x</td> <td style="text-align: center;">y</td> </tr> <tr> <td>woman(x)</td> <td>dog(y)</td> </tr> <tr> <td colspan="2" style="text-align: center;">walk(x,y)</td> </tr> <tr> <td colspan="2" style="text-align: center;">happy(x)</td> </tr> </table>	x	y	woman(x)	dog(y)	walk(x,y)		happy(x)	
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Pronouns are treated on a par with definite descriptions as triggering descriptive, existential presuppositions, only now the descriptive contents come from the person, number and gender features.

Before we go into the representation of names and indexicals in this dynamic/presuppositional framework, we have to flesh out the notion of presupposition resolution a little further. So far, we have seen an example of presupposition binding, also known as satisfaction: presuppositions look for a suitable, matching antecedent discourse referent in the context, the discourse referents get unified and the presupposition disappears.

⁸ For a detailed overview of presupposition theories, including Van der Sandt's, see Beaver and Geurts (2011).

But presuppositions can't always find a matching antecedent. To avoid tedious referent introduction by indefinites, speakers will often just use a definite, counting on the hearer to automatically adjust her context to accommodate a suitable antecedent. This is what happens when the speaker continues our little story by uttering (13):

(13) Her husband doesn't like the dog.

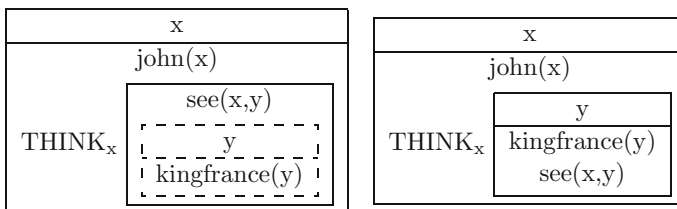
Semantically speaking, *her husband* is a definite description, (equivalent to *the husband of her*), which triggers the presuppositions that there is a salient female third person ("her") and that this person has a husband. We have no problem finding antecedents for the pronoun and *the dog*, but the husband has not been mentioned before. In cases like this, a cooperative and trusting hearer will likely assume (or pretend "for the purpose of the conversation") that there *is* such a husband and simply add a corresponding discourse referent to the global context. Following Lewis (1979), this mechanism of antecedent creation triggered by unbindable presuppositions is called "accommodation", and it is one of the hallmarks of presupposition.

In fact, the so-called *Hey wait a minute* test (von Stechow 2004) for presuppositionality that linguists like to use is really a way of detecting a speaker's attempt at accommodation. The idea behind the test is that, if a speaker asserts *p*, the hearer can straightforwardly object by saying *No, that's false*, but if the speaker presupposes *p*, the hearer must register her complaint in a different way, for instance by saying *Hey wait a minute, I didn't know that p*. The possibility of objecting in the latter way has proven a rather reliable way to detect presuppositionality. In (14) we see an application of the test that shows that the existence of a King of France is presupposed, while his baldness is asserted:

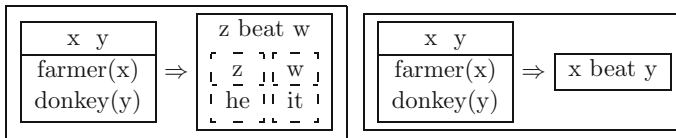
(14) A: The King of France is bald
 B: Hey wait a minute! I didn't know that France had a King
 B': *Hey wait a minute! I didn't know that he was bald

We have now seen both binding and accommodation at the global, i.e. unembedded, DRS level, but they can each occur at embedded levels too. Local accommodation can be seen, for instance, in *de dicto* readings of definites in attitude reports (15a), while donkey sentences illustrate non-global binding:

(15) a. John thinks he saw the King of France



b. If a farmer owns a donkey he beats it



This last resolution actually depends on the dynamic interpretation of the conditional in which a consequent is thought of as an “extension” of the antecedent. That is, as far as presupposition resolution and variable binding are concerned, the discourse referents and associated content in the antecedent are *accessible* to the consequent, allowing the binding of the presuppositions z and w to x and y . Without going into semantic details here, let me just note that donkey sentences in DRT do not require any special treatment of the pronouns: all pronouns are uniformly treated as presupposition triggers, with contents provided lexically by their surface features.

Given all these resolution strategies (binding vs. accommodation, global vs. non-global), presupposition resolution seems to allow for a good many different outputs in any given case. Van der Sandt therefore identifies a number of resolution constraints. For instance, binding is generally preferred over accommodation, and global accommodation over local. In the end, these constraints can be overruled by more general pragmatic considerations: if there are several different resolution options, choose the most coherent, plausible one given context and world-knowledge.

In the dynamic framework above, the important semantic distinction is between indefinites, which introduce new discourse referents, and definites, which pick up old referents. The latter mechanism is formulated above in terms of a more general notion of presupposition resolution. Anaphoric pronouns are treated like definite descriptions as triggering descriptive, existential presuppositions that want to be bound, or else accommodated. But where do proper names fit in? In the remainder of this paper I will argue the case for treating proper names just like pronouns and descriptions, viz. as presupposition triggers.

4.3 Proper Names as Presupposition Triggers

Clearly, the use of a proper name does not typically introduce a new discourse referent in the conversation. Rather, they are used to talk about individuals that are already in the common ground. It seems reasonable to try and assimilate names to the class of presupposition triggers. Now, this essentially amounts to treating names as definite descriptions, contra the argumentation of Kripke. Before addressing Kripke’s objections, let me first demonstrate what the presuppositional version looks like.

Geurts proposes a presuppositional version of Kneale’s quotational description theory, i.e. *John* presupposes that there is someone named “John”. What Geurts

shows is that names exhibit all the characteristic behavior of presuppositions that we would expect on such an analysis.⁹

First of all there is the tendency of names to project out of embeddings. Kripke notes that the reference of names (unlike definite descriptions) is never affected by modal operators, i.e. even embedded in counterfactuals (*Aristotle might have been happier if he had never met Plato*), the name *Aristotle* always simply picks out the actual Aristotle. The presupposition theory of names predicts this behavior: since the global discourse context likely provides (or at least allows for the accommodation of) a referent named *Aristotle*, the presupposition triggered inside any kind of embedding will bind to that.

Second, a prediction more specific to presupposition theory is that of binding by antecedents explicitly introduced by indefinites. Here's an example of an indefinite introducing a new referent with a certain name, which subsequently gets picked up by the corresponding name:

- (16) In Druva's line there was a king named Prachinavarhi. Prachinavarhi had ten sons, known as the Prachetas.¹⁰

Now, this is a case of global binding, but presupposition theory also predicts the possibility of non-global binding of names:

- (17) a. If a child is christened *Bambi* and Disney Inc. find out about it, they will sue Bambi's parents (Geurts 1997)
 b. Amy thinks there's a monster under her bed named *Growler* and if she falls asleep and Growler gets hungry, he will eat her

A presuppositional analysis also predicts accommodation. Indeed, the *Hey wait a minute* test shows the availability of global accommodation:

- (18) A: Look what Ted just posted on facebook. Very funny.
 B: Hey, wait a minute, I don't know anyone called *Ted*.¹¹

Finally, the literature on description theories of proper names provides examples of purely descriptive occurrences of names, which in the presuppositional setting correspond precisely to local accommodation:

- (19) If presidents were elected by alphabetical order, Aaron Aardvark might have been president (Bach 1981)

⁹ Abbott (2002) argues that many of Geurts's arguments are unconvincing, and I agree on some counts. I disagree with Abbott on the importance of the non-global binding and accommodation examples, cf. *Bambi* (17a) and *Aardvark* (19) below. While she claims these are special cases in which apparent names have some kind of non-standard interpretation, I maintain that these examples provide support for a presuppositional account of proper names.

¹⁰ It would be rather unnatural to italicize or otherwise quote the first occurrence of *Prachinavarhi* here, but, logically speaking, the name is mentioned rather than used.

¹¹ I'm paraphrasing the precise application of the test: Hey wait a minute! I didn't know that there was someone (salient in the context) who is called *Ted*.

One possible reading of (19) is that in worlds where presidents are elected by alphabetical order, there might be someone named Aaron Aardvark, who might be elected president. In any case, the sentence is not about an actual individual in the common ground who is actually named Aaron Aardvark.

Summing up, presupposition theory in DRT naturally leads to a distinctly dynamic conception of proper names, viz. proper names are simply presupposition triggers. Just like pronouns and definite descriptions. Their function in discourse is not to contribute new information to the common ground, but to pick up old discourse referents. The presuppositional analysis of proper names makes a number of specific predictions that appear to be all borne out: proper names do indeed show all the characteristic binding and accommodation behavior we associate with presuppositions.

In the next two sections I compare the presuppositional theory with both the traditional linguist's treatment of names as R-expressions, and the traditional philosopher's treatment in terms of rigid designation.

5 Presupposition Theory Versus Binding Theory

Presupposition Theory and Binding Theory make different distinctions within the class of referential expressions. Presupposition Theory treats names and pronouns in the same way, viz. as triggering descriptive, existential presuppositions. Binding Theory (including the semantics that goes with it) treats names as purely referential devices, but pronouns as variables that can be (i) bound or free, and (ii) carry definedness conditions.

We've already seen above that Presupposition Theory deals with donkey pronouns in a more uniform fashion than does Binding Theory. Here, we will look at the specific predictions regarding names and pronouns within the domain of Binding Theory.

5.1 Sloppy Pronouns

Let's consider in detail what Binding Theory entails for the semantics of pronouns:

(20) John likes his mother

According to the pronouns-as-variables thesis, we can represent *his* as a variable bound by *John*, or a free variable that independently refers to John. These are two different logical forms, one with a free variable, and one with a bound variable representing the pronoun. But the truth conditions are the same: John likes John's mother.

Interestingly, when we add an elliptical continuation to sentences like (20), we systematically end up with two truth-conditionally distinct readings:

- (21) John likes his mother and so does Peter
- a. strict: Peter likes John's mother
 - b. sloppy: Peter likes Peter's mother

In generative syntax/semantics, this strict/sloppy ambiguity derives from the free/bound ambiguity of the variables representing pronouns. That is, if (20), the first conjunct of (21), has the bound-variable logical form, i.e. John is ascribed the property loving-one's-mother, the ellipsis will pick up this bound-variable property and assign that to Peter, leading to the sloppy reading. If on the other the logical form is the one where John has the property of loving x 's mother, where the contextual assignment determines that $f(x) = \text{John}$, the ellipsis would pick up that property, including the free variable referring to John, leading to the strict reading.

How can the dynamic, uniform analysis of pronouns as presupposition triggers analyze the strict/sloppy data? Note that on this view there is no ambiguity between a bound-variable and a free pronoun in (20). In a dynamic setting we simply have a John given in the common ground, and then both the proper name and the pronoun independently bind to that. An account of the strict/sloppy ambiguity therefore requires a rather different analysis of ellipsis, one that generates this ambiguity without relying on an independent and invisible ambiguity in the underlying simple sentence (20).

A promising candidate is Dalrymple et al.'s (1991) analysis of ellipsis resolution using Higher-Order Unification (HOU). In this framework, the elided phrase in (21) is represented as a second-order variable, the property that Peter has, which needs to be resolved on the basis of the information conveyed by the first conjunct, viz. that John likes John's mother. Without going into the details, the system allows us to derive that P could be either liking John's mother or liking one's mother. This flexible resolution process derives strict and sloppy readings without relying on an ambiguity on the first conjunct, instead it relies on some general pragmatic constraints on parallelism, and the output of updating with the first conjunct.

Following Pulman (1997) we can apply the same mechanism to account for other environments that give rise to a strict/sloppy ambiguity, such as the focus-sensitive operators *only* and *even*. In a nutshell, *Only Mary thinks her job is great* is analyzed as *Mary thinks her job is great but nobody else does P*, which, by HOU, resolves into *nobody else likes Mary's job* or *nobody else likes their own job*.

5.2 Sloppy Names

So, it seems the dynamic view can at least match the predictions of Binding Theory with respect to pronouns in ellipsis and focus constructions. Now let's turn to proper names. According to the generative picture, proper names differ from pronouns precisely in that they do not have this bound/free ambiguity, and consequently, they should not give rise to a strict/sloppy ambiguity. But, according to the presuppositional view, names are just like pronouns, they simply want to bind to a contextually given antecedent. In particular, there should be no difference between pronouns and names with respect to strict and sloppy readings in ellipsis and focus constructions.

So consider (22): Binding Theory predicts only a strict reading, the presuppositional+HOU account predicts both a strict and a sloppy one:

(22) John likes John's mother, and so does Peter

So *does* this sentences have a sloppy reading? It appears not, the second conjunct of (22) can only mean that Peter likes John's mother. Note however that there is a confounding factor here: The first conjunct of this sentence is simply not very good. Some syntactic principle (Chomsky's "Condition C") prevents English speakers from producing examples like this, so the question about a possible sloppy interpretation is moot. The same prediction applies to the focus variant (23), which, for some reason, is somewhat more palatable. Crucially, (23) still lacks a sloppy reading (*others don't like their mothers*), as predicted by Binding Theory:

(23) Only John likes John's mother

All in all, it does look as if the generative linguistics prediction is borne out: insofar as a sentence like (23) or (22) is interpretable at all, it admits only a strict reading.

Now, I want to argue that Condition C or, more generally, the markedness of coreferential names, itself somehow leads to the observed preference for a strict reading in (22) and (23). This route is explored by Maier (2009). I draw crucial support for this position from considering environments for which we know independently that Condition C effects are weakened. As I will show below, in some of these, the sloppy reading actually reappears. I take this as evidence that the lack of sloppy readings for examples like (22) and (23) are due more to Condition C and/or other independent factors than to a semantic difference between pronouns and names as referential devices. Below I briefly review three Condition C weakenings that bring back sloppy readings for names.

First, we can rely exclusively on context and world knowledge to try and force a sloppy reading. A case in point is Roeper's (2006) (24), for which he shows with a small survey that a sloppy reading is indeed available.

(24) Only Mary still looks like Mary in these old family photos. [= the others don't look like their younger selves anymore]

Second, we can consider special "dialects" like Motherese and Legalese (Maier 2009). Or consider a register with formal descriptive terms of address:

(25) His Majesty the King is the only one who is wealthy enough to still support His Majesty's own family in these dire times. [= others can't support their families]

Third, there even full languages where Condition C is claimed to be weakened, restricted, or absent. The example in (26) shows a sloppy name in such a language (San Lucas Quiavini Zapotec, Lee 2003).

(26) B-gwi'ih Gye'eihlly lohoh Gye'eihlly zë'c cahgza' Li'eb.
 perf-look Mike at Mike likewise Felipe
 'Mike looked at himself, and so did Felipe [= Felipe also looked at himself]'

Let's compare how the presuppositional and the binding-theoretic accounts would deal with these phenomena. On the presuppositional view, we treat Condition C as a markedness principle that says names are dispreferred whenever pronouns can be used to say the same thing. It is just this markedness principle that is weakened in these examples, either pragmatically or grammatically. Strict and sloppy readings are generated, as usual, by the independent HOU mechanism. On the Binding Theory view, we can only accommodate these examples if we allow proper names to be interpreted as if they were bound pronouns, i.e. if we give up the strict semantic distinction between pronouns and names. In sum, in the area where the predictions between the presuppositional view and the Binding Theoretic view diverge, i.e. the sloppy readings of co-referential R-expressions, the data are somewhat mixed and complex, but they certainly don't support a strict grammatical distinction between names (R-expressions) and pronouns.

6 Presupposition Theory Versus Rigid Designation

We will now take a closer look at the relation between names and definite descriptions. In this domain, again, the presuppositional view predicts no significant difference: both are treated as descriptive presuppositions. The Kripkean view however posits a deep semantic distinction: names have no semantic content, they simply refer to the object they were originally attached to, while definite descriptions pick out their referent on the basis of who satisfies their descriptive content in the given world of evaluation.

Arguably, an immediate benefit of the presuppositional view compared to rigidity is the way it deals with names with multiple bearers. The rigid designator view entails that the many people named *John Smith* actually all have different names, each connected with a different baptism, but these names just happen to sound the same.¹² The presuppositional view does not commit us to such massive and counterintuitive homophony in language. Any occurrence of the name *John Smith* lexically triggers the same presupposition. This presupposition looks for the (most salient) person so-called in the context, and therefore can be bound to different people in different contexts.

Below I discuss another major benefit involving projection behavior, as well as a crucial shortcoming of the simple presuppositional approach outlined above.

6.1 The Projection Behavior of Names

To support the hypothesis that names are presuppositions I've already shown some examples of the various binding and accommodation options that a Kneale/Geurts/van der Sandt analysis predicts. Some of these, such as the local resolutions of the Bambi (17a) and Aardvark (19) sentences, are clearly not captured by a Kripkean

¹² See (Kaplan 1990:110) for an explicit defense of this consequence, or see Pelczar and Rainsbury (1998) for one of the proposals that treat names as indexicals to circumvent it.

analysis. For example, in the intended reading, *Bambi* does not refer to the “actual” movie character Bambi, but to the hypothetical child of the same name.

Now, perhaps these examples are somewhat marginal. Global binding examples however are ubiquitous. In cases like the Prachinarvarhi story in (16), the dynamic view seems to capture precisely what’s going on: we introduce a new entity into the discourse, predicate that it bears a certain name, and then simply use the name to refer back to that discourse entity. This explains, moreover, why we can often use names, pronouns and descriptions interchangeably. For instance, instead of *Prachinarvarhi* we could have said *he* or *the king*. By contrast, the Kripke-style rigid designator semantics bypasses the intuitively crucial dependence on the introduction of a name in previous discourse, and hence also misses the connection between names, pronouns, and descriptions.

6.2 The Rigidity of Names

Despite these shortcomings of a simple, static view of names as rigid designators, we still need to address Kripke’s powerful arguments establishing that names behave differently from definite descriptions.

By adopting the minimalist, quotational description theory of Kneale, we have arguably already countered the a prioricity argument (as argued in Sect. 2), so we have to deal with the modal argument. Compare:

- (27) a. Hollande is called *Hollande*
 b. The person called *Hollande* is called *Hollande*

For Kripke the first expresses a contingent truth, the second a necessary one; for Kneale the two would be equivalent. Since there are no different levels of embedding leading to local or global resolutions, Geurts predicts that the name in (27a) binds or accommodates globally, just like the description in (27b). Both of (27a) and (27b) thus yield the same output DRS that expresses that there is a person called *Hollande*.

Zeevat (1999) argues (concerning an analogous description theory of indexicals) that the difference lies in the *status* of certain bits of information: the name in (27a) typically binds, and hence adds nothing new, while the description in (27b) is more readily accommodated and thereby contributes its descriptive content as new information to the DRS. The problem is then how to cash out this distinction semantically, preferably in terms of propositions expressed, so that we can check against Kripke’s modal judgments.

7 Proposal: Dynamic Anchoring in DRT

7.1 Adding Anchors or Layers?

Kamp & Reyle’s (1993) DRT textbook addresses Kripkean worries about the referential nature of names by adding external anchors, i.e. a partial assignment

function that maps the variable x representing the name *Hollande* to some actual individual. In other words, we are giving names here the generative semanticist's free-variable treatment, discussed in Sect. 3.2. Note that this move brings in precisely the Kripkean notion of rigidity: if a name is represented as an externally anchored variable, it obviously refers directly to the value assigned by that anchor. But how to reconcile the external anchoring that happens outside of the dynamically constructed DRS, with a presuppositional view of names that can also account for non-referential uses (through accommodation or local binding).

Starting with Zeevat (1999), a number of authors have been trying to bridge this gap between dynamic presuppositionality and rigid external anchoring, leading to different ways of internalizing anchors properly into DRT. In previous work (Maier 2009) I proposed distributing all DRS content over two "layers": one for regular truth-conditional (at issue) content, and one for "reference fixing" content meant to secure reference of rigid designators. A name triggers a presupposition whose descriptive content resides on the second layer, and wants to bind to material in this layer. Focusing on indexicals in particular, Hunter (2010, 2013) argues against this analysis on the grounds that it is still not dynamic enough. For names, consider cases of binding, like Bambi and Prachinavarhi. Both show names binding to truth-conditionally at issue content, thus breaking the supposed "Layer Faithfulness Constraint". My (2009) ad hoc fix in terms of constrained "Layer Hopping" is ultimately unsatisfactory.

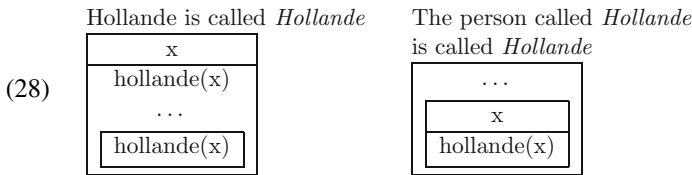
Below I want to defend a different approach to unite rigidity and presuppositionality for proper names, extending Hunter's idea of an extra embedding level in DRSs.

7.2 The Hyperglobal DRS

Hunter's starting point is that a DRS should represent some information about the speech situation in the external world, e.g. there's a guy named John who is now speaking, and there is this woman standing over there, listening, while pointing at a cup on the table, etc.¹³ The information that is conveyed, dynamically, by the actual linguistic discourse should be kept in a separate but connected DRS, because often linguistic content depends on features in the external speech situation (e.g. *I* refers to the speaker). More specifically, she posits an extra embedding layer, a hyperglobal DRS housing the discourse referents and associated content representing the speech situation, within which the discourse representation proper is embedded. Semantically, the hyperglobal DRS content plays a role similar to my (2009) "kk-layer", Kamp's (1990) "internal anchors" or Zeevat's (1999) "intensional anchors", that is, their content is to be interpreted with respect to a fixed context parameter, distinct from the intensional world of evaluation that goes into the proposition.

¹³ As a reviewer points out, this relevant body of information about the external speech situation is reminiscent of the notion of a discourse/utterance situation as used in Situation Semantics (Barwise and Perry 1983). In other words, we can think of Hunter's hyperglobal DRS as a description of the discourse situation.

Before going into some technicalities, note that the hyperglobal embedding can be used to represent Zeevat’s version of Kripke’s intuition of a semantic difference between (27a), uttered in a context where *Hollande*, the person, is actually salient; and (27b), where the description is meant to be accommodated. In the first case, the at issue content is about an x rigidly fixed to an individual called *Hollande* in the speech situation c . In the second case, this descriptive information has become a part of the truth-conditional contribution.



Technically, I follow Maier’s DRT implementation of Kaplan’s two-dimensional semantics.¹⁴ Let K be a Hunter-style DRS, K_1 the subDRS containing the discourse representation proper, and let K_0 be the hyperglobal DRS, i.e. K minus K_1 . Basic notation: $U(K)$ is the set of discourse referents (“universe”) of K , and $Con(K)$ the set of conditions in K (roughly, a set of first-order formulas). If c is a Kaplanian context of utterance, define $Anch(K, c)$ as the unique embedding of K into c , i.e. the partial assignment function f such that $Dom(f) = U(K)$ and for all $\psi \in Con(K)$: $\llbracket \psi \rrbracket_c^f = 1$, i.e. every condition is fulfilled relative to assignment f and evaluation index c . We define the basic semantic notion of truth of a Hunter-DRS K with respect to an utterance context c and a possible world w , as truth of K_1 in w , relative to the anchor $Anch(K_0, c)$. In other words: $\llbracket K \rrbracket_w^c = 1$ iff $\llbracket K_1 \rrbracket_w^{Anch(K_0, c)} = 1$, from where we can follow the standard DRT (or first order modal logic, for that matter) notion of truth of a DRS with respect to a partial assignment/embedding and a possible world ($\llbracket K \rrbracket_w^f = 1$ iff..., cf. e.g. Geurts 1999).

Let me illustrate this semantics with the proposed outputs of the Kripke–Zeevat contrast in (28). In (28a), *Hollande* is represented hyperglobally, yielding an anchor that fixes x to the individual actually called *Hollande* in c . The embedded DRS then represents the information that is predicated of this x by various utterances in the discourse. In this case, the (contingent) information that he (x) is called *Hollande*. In the accommodated description variant, by contrast, no anchor is constructed because the existence of someone called *Hollande* is represented as part of the truth conditions.

7.3 Varieties of Projection Behavior

In the previous section we have seen how to define DRS representations with a modified semantics to cash out the Kripke–Zeevat contrast. But we still need to show how to extend the presupposition resolution mechanism to derive these outputs from context and sentence representations.

¹⁴ Hunter (2013) provides a different, less traditional semantics, but the relevant results are the same.

Maier's 2009 idea to separate rigid presuppositions from descriptive presuppositions was too strict. By contrast, Hunter views the hyperglobal DRS as simply an extra embedding level, indistinguishable from other levels, as far as presupposition resolution is concerned. That is, a name triggers a quotational presupposition that may be bound locally as in (17a) (*Bambi*), or globally, as in (16) (*Prachinavarhi*), or hyperglobally, as in typical Kripkean uses of names like *Aristotle* or *Hollande*. In the latter case, the output DRS expresses a singular proposition, about the actual bearer of the name. In addition, when binding fails, we resort to accommodation, which is somewhat more restricted,¹⁵ but which can happen globally as in (18) (*Ted*) or locally as in (19) (*Aardvark*).

Note that these same resolution options are available for any presupposition, i.e., those triggered by definite descriptions, indexical pronouns, and third person pronouns alike. But that means that, not only do we predict that *Hollande* may occasionally give rise to a descriptive reading (through global accommodation, for instance), but also that, conversely, *the person called Hollande* may be read referentially, i.e., as referring rigidly to the actual *Hollande*. A suitable instance of the *Hey wait a minute* test, e.g., (18) in Sect. 4.3, suffices to verify the first prediction. As for the second prediction, it is true that using *the person called X* tends to give rise to accommodation more easily than the corresponding name. However, this has a straightforward independent explanation in terms of *iconicity* or *blocking*, i.e. the marked form (multi-word description) pragmatically giving rise to the marked meaning (accommodation, discourse referent creation).

Still, presupposition resolution plus pragmatic blocking is not quite the entire story. When we zoom out and consider the full range of definites, it becomes clear that some of them project rather differently than others. For instance, Van der Sandt already noticed that the presuppositions triggered by third person personal pronouns are not as readily accommodated as definite descriptions.¹⁶ Also, attenuated definite descriptions (*the man*) are much more averse to accommodation than richer definite descriptions, especially those that express a relation to the speaker (e.g. *my best friend Mary Allen from high school*). The most restricted in their resolution possibilities are pure indexicals like *I*, which seem to be resolvable only through binding at the hyperglobal level.

Proper names are somewhere in the middle, between the necessarily hyperglobal *I*, and the rich definite descriptions that may be bound or accommodated wherever (but in many cases actually prefer accommodation on grounds of pragmatic blocking). We have seen that names allow all kinds of binding, and even some forms of accommodation. But, arguably, their basic usage is to pick out actual

¹⁵ There is a lot of discussion about whether for instance intermediate accommodation can happen (or even makes sense conceptually). With respect to hyperglobal accommodation I'm inclined to say that accommodation is a speaker's deliberate strategy, leading to new, truth-conditionally at issue information. Hence, accommodated material may end up at the global discourse level, but never in the hyperglobal level.

¹⁶ Pronouns can however accommodate "partially." For instance, you can use *she* to contribute the information that the intended referent is female in a context where this is not yet known. Cf. the *hey wait a minute* test: A: "She deserves a better grade." B: "Hey wait a minute, I didn't know that was a woman!"

individuals (i.e. through hyperglobal binding), or individuals just introduced in the discourse (global binding).

Hunter actually makes a start with building projection preferences into presuppositions, adorning them with two distinct \uparrow operators that tell the resolution algorithm about the item's global resolution preferences. But clearly there are more than two distinctions to be made. Ultimately, then, a more finegrained typology of "projective content" is called for (cf. Simons et al. 2011). Although I cannot provide this here, I will conclude that drawing a sharp line between pronouns and the rest (as proposed by generative linguists) or between names and descriptions (as proposed by Kripke) is a false start of such an endeavor.

8 Conclusion

In contemporary philosophy of language, the most common semantic distinction within the class of expressions used to refer to individuals, is that between reference by description, exemplified by definite descriptions, and direct reference, exemplified by proper names and indexicals. In generative linguistics, Binding Theory tells us to distinguish between pronouns and R-expressions (including both names and descriptions), both syntactically and semantically. Dynamic semantics, finally distinguishes primarily between definites, which trigger presuppositions, and indefinites, which introduce new information into the context.

On the dynamic view, names are analyzed as presupposition triggers, which predicts that a number of not-strictly referential readings should be possible. These readings are in fact all attested, making a convincing case for this approach. On the other hand, the dynamic view leads us to throw overboard not only the distinction between pronouns and R-expressions, but also that between names and definite descriptions. In this paper I have defended the first part, giving up the distinction between R-expressions and pronouns, against an attack involving strict and sloppy readings. I argued that the second part, giving up the distinction between referring directly to an individual and picking it out by description, is problematic in light of Kripkean judgments about necessity and contingency. I have sketched a way to fix this final problem by incorporating internalized reference anchors, at the representational level corresponding to an extra, hyperglobal DRS embedding.

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