Language, Locations and Presupposition

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1 Introduction

Could it ever be right to say that a language—as opposed to a speaker of the language—makes, or presupposes or somehow commits itself to certain claims? Such as that certain kinds of objects exist, or that things are a certain way? It can be tempting to think not, to think that languages are just the neutral media through which speakers make claims. Yet certain, surprisingly diverse, phenomena—analyticity, racial epithets, object-involving direct reference, arithmetic, and semantic paradoxes like the Liar—have pushed philosophers towards views according to which languages can have presuppositions or commitments of their own—to things like the existence of numbers, the marital status of bachelors, the existence of water, and even to contradictions or morally abhorrent views.

In this paper I want to present some recent data from linguistics that supports a less commonly discussed, and rather surprising version of this idea: namely that English presupposes the existence of locations or places. In section one I do some work to clarify what this claim could possibly mean by identifying some central ways in which languages have been thought to presuppose various things about the world. In section two I present the core of the linguistic data and theory from the work of Susan Rothstein. In section three I compare it to some older work by David Kaplan, arguing that the significance of the new results is greater for the issue at hand, and then in the final section I examine the philosophical significance of this work. One might attempt to draw quite impressive conclusions: such as that the existence of space is analytic, and hence a priori. I will argue that such a conclusion here would be over hasty, and that what we really have is just a surprising fact about our not-so-neutral natural language.

2 Languages and Presupposition

Recent work in linguistics by Susan Rothstein[1] suggests that the English language presupposes the existence of certain kinds of objects—locations—where

[1] Rothstein's work not yet in print, but was presented at XXXXXXXXXXX.

locations can be understood in a fairly intuitive way, as the kind of thing speakers commit themselves to the existence of when they utter sentences like:

(1) The place where we're going is beautiful.

(2) Sarah is hiding in the same place as Tony.

(3) Where we're going is beautiful.

Let's distinguish five ways in which a language might be said to be committed to a certain claim. First, the claim might be expressed by a sentence that is analytic in that language. Thus if "all bachelors are unmarried" is an analytic sentence of English, then we will say that English is committed to the claim that all bachelors are unmarried. If the language has no analytic sentences, or if analytic sentences do not express genuine claims, it follows that it is not committed to any claim in this way. (Herzberger, 1965; 1967)

Second, it might be part of the way the language is structured that much of it can only be useful for describing the world if the world also has a certain kind of structure and contains certain kinds of thing. For example, suppose a language consists of two kinds of expression, simple names, which have the task of denoting objects, and simple predicates, which have the task of attributing properties to the objects so-denoted. Hence, it might be that "P" is a predicate and "a" a name, and "Pa" a sentence that is true iff the object denoted by "a" has the property attributed by "P". If all the language were structured like this, it would be reasonable to say that it presupposed i) that there are objects and ii) that there are properties. For if there were not—if the world were a swimming, unstructured void empty of objects and properties—then the language would be next to useless for describing that world.

Third, and more weakly, we might say that a language presupposed a claim if many of the sentences that are normally taken to be true in it could not be true unless this claim were true. Two fairly extreme examples will serve to show how broad a category this is: one might say, in this sense, that the language of arithmetic presupposes the existence of numbers, for many of its sentences which we take to be true could not be true unless numbers exist. But similarly, one might also say that certain African languages presuppose the existence of witches, since many of sentences that are taken to be true by many of their speakers could not be true unless witches exist. From this latter example I think it is clear that this is not the most interesting sense in which a language can be said to presuppose the existence of something.

Fourth, one might take languages to be committed to the existence of the objects which occur in the propositions which they express. To take a more obvious example, a language in which "Hesperus is bright" expresses a Russellian proposition containing the object Venus, might be taken to presuppose the existence (at least at some time in the past) of Venus. After all, if this were not true, the language could not be as it is. A less obvious example might be that a language in which "Hesperus is bright" expresses a proposition composed from the senses of "Hesperus", "is" and "bright" might be said to presuppose

the existence of senses. More generally, one can think of languages as relations between expressions and meanings[2] and to presuppose the existence of those meanings—whether those be propositions and the constituents of propositions, or characters, or denotations or whatever other kinds of meaning there are.

And finally, there is the kind of presupposition that comes from conventional implicature. (Grice, 1991) It has often been remarked when discussing racial epithets for example, that if you hold a certain kind of view (such as that the colour of one's skin is not interestingly related to one's value as a human being) then there are certain words (such as "nigger") that one will simply not use. One plausible explanation for this is that the use of such words—in any sentence or its negation—conventionally implicates the negation of the claim you hold.

In which of these senses, does Rothstein's work suggest that English presupposes the existence of locations? In order to answer this question it I need to present her view in a little more detail.

3 Locative Semantics for English

Rothstein employs functional type-theory in order to give a semantics for English. Such a theory normally assumes that there are at least two basic types: d, which is the type of an expression which denotes an object, and t, which is the type of expression which denotes a truth-value.[3] Other types are derived from these basic ones. For example, $\langle d, t\rangle$ is the type of expression which applies to an expression of type d to produce an expression of type t (that is, it is the type of unary predicates) and $\langle\langle d, t\rangle, t\rangle$ is the type of expressions which are applied to unary predicates to produce expressions of type t (that is, the type of quantifiers, or of names.) $\langle\langle d, t\rangle, \langle d, t\rangle\rangle$ is the type of an expression that when applied to a predicate produces another predicate. An example of an expression of this latter type might be the copula 'is', that when applied to the predicate 'black' produces the predicate 'is black.'

Against this background, Rothstein argues that English employs a further basic type, namely that of locations, l. l is the type of locative prepositional phrases (PPs) such as those in italics below:

(4) John is *at the supermarket.*

(5) *Inside the station* you can buy stamps.

One might also take it to be the type of locative indexicals and demonstratives like "here" and "there", as in

(6) I am *here.*

(7) We should set up camp *there.*

[2] I say 'relations' rather than 'functions', since one might take expressions to have several kinds of meaning—characters, contents etc.

[3] Montague originally used e for entity, instead of d, but Rothstein follows (Landman, 2000) in using d to avoid confusion with e when it is used in event theory.

Adding a further basic type to the theory brings many derived types with it, and so we will also have expressions of type $\langle l, t\rangle$ (predicates of locations), and expressions of type $\langle\langle l, t\rangle, t\rangle$ (quantifiers over locations) etc.

As it stands, this is an intriguing idea, but one pressing question about it is why we need to add locatives as a *separate* type, instead of just including them as members of d. The plain old set of expressions of type d surely contains expressions which refer to many different kinds of objects—red objects, abstract objects, times, reasons, satisfactions, successes, beliefs—why think locations need to be included explicitly in our semantics, if red objects and satisfactions do not?

This is one of the questions for which Rothstein's work provides an answer. Her data concerns observations about relative clauses. Relative clauses often contain an expression called a "complementiser", such as "that" or "which":

(8) The apple *which* John ate was from the store.

(9) The pear *that* Mary ate was from the garden.

This complementiser is sometimes obligatory—meaning that the sentence will be ungrammatical if it is left out—and sometimes optional—meaning that the sentence will be grammatical with or without it. In (9) and (10) it is optional, and as a result (11) and (12) are perfectly good sentences:

(10) The apple John ate was from the store.

(11) The pear Mary ate was from the garden.

However in (13) the completementizer is necessary, making (14) ungrammatical:

(12) The market where Sally bought the apple is new.

(13) *The market Sally bought the apple is new.

One might expect the explanation of this to be connected to the position of the gap in the relative clause: in (9) the gap in the relative clause is in argument position, whereas in (13) it is in adjunct position. However, there are relative clauses whose gaps are in argument position where the complementiser is obligatory:

(14) The shelf where I put the book

(15) *The shelf I put the book

Rothstein argues that the correct generalisation concerns not the position of the gap in the relative clause, but the semantic type of the variable filling the syntactic gap, and thus the semantic type of the relative clause as a whole. We take the semantic type of an ordinary relative clause like "which Mary ate" to be $\langle d, t\rangle$ and of a locative relative clause like "where I put the book" to be $\langle l, t\rangle$. We can think of "which Mary ate" as denoting the set of things eaten

by Mary, and "where I put the book" as denoting the set of locations where I put the book. Predicates like "shop", "shelf" and "book" are also taken to have semantic values that are functions from entities to truth-values $\langle d, t\rangle$, and "place" to have a type $\langle l, t\rangle$.[4] Rothstein's data suggests that complementiser deletion is allowed in just the cases where the type of the relative clause matches that of the predicate. To illustrate:

(16) The apple Sally ate is P.

(17) *The market Sally bought the apple is P

(18) The place Sally bought the apple is P.

In sentence (16) there is no mismatch; "apple" and "which Sally ate" are both of type $\langle d, t\rangle$, and so complementiser deletion is allowed. In sentence (17) however there is a mismatch; "market" is of type $\langle d, t\rangle$ whereas "where Sally bought the apple" is of type $\langle l, t\rangle$. Hence the theory predicts that no deletion is allowed and this explains the badness of (17). In (18) however, both "place" and "where Sally bought the apple" are of type $\langle l, t\rangle$ and hence deletion is allowed.

If Rothstein is right then English distinguishes between locations and other kinds of entity and allowing such a distinction allows us to explain why certain sentences are good English, and others are not. Moreover, English presupposes the existence of locations in at least senses 2 and 4 outlined above. It allows direct reference to to locations, suggesting that if locations do not exist, then the expressions would not have the meanings that they have. Moreover some English expressions express functions from locations to truth-values. These expressions would be useless for describing the world if there were no locations, much as colour-predicates would be useless for describing the world if there were not objects with extension.

4 Kaplan's LD and the "is" of location

Rothstein's semantics is strongly reminiscent of one of the less well-trampled sections of Kaplan's "Demonstratives." (Kaplan, 1989b;a)Kaplan's logic **LD** (for "Logic of Demonstratives") is an unusually rich one. **LD** is not only a quantified modal logic (already too rich for some tastes), but a quantified *multi*-modal logic (containing both alethic and tense modal operators) with contexts (to allow for the characterisation of indexicals as context-sensitive expressions), and with all that machinery perhaps it is not surprising that commentators rarely get as far as remarking that LD is also a two-sorted logic, which is to say that it uses two different kinds of variable, in this case, one kind that ranges over ordinary entities, and one kind that ranges over places.

The arity of a predicate in LD must then be represented by a ordered pair of numbers $\langle x, y\rangle$, in which the first is the number of individual-terms it takes, and the second is the number of place-terms. Kaplan's logical predicate "Located",

[4] Rothstein also gives independent evidence for the claim that 'place' is of type $\langle l, t\rangle$.

for example, has an arity of $\langle 1, 1\rangle$, meaning that it takes one individual term and one place term, as in sentence 19, which is a well-formed formula in **LD**.

(19) Located (I, here)

But there might also be ordinary unary predicates of individuals (arity $\langle 1, 0\rangle$) as well predicates which take only place-terms, such as "Between(London, New York, Moscow)" which has arity $\langle 0, 3\rangle$).

Two-sorted languages like this are sometimes seen in philosophy when 2nd-order logic is being introduced; one distinguishes variables that range over objects from variables which range over properties, but given its unusualness in the present context it is surprising that Kaplan doesn't say more, or indeed anything, to motivate this aspect of his logic, either in "Demonstratives" or in "Afterthoughts".

Rothstein's and Kaplan's projects have some striking similarities, but there are two reasons to think that—to the extent that we are concerned solely with the possible commitment of English to the existence of locations—Rothstein's work has greater significance. First, few logicians would take the presence of something referred to as a "possible world" in a structure to be making claims about whether there is or is not such a thing as a possible world. Similarly it is hard to see anyone taking the presence of locations in Kaplan's structures as making a claim about the existence of such things. Structures are mere instruments (though sometimes very suggestive instruments) for use in describing the relation of logical consequence on a set of sentences. Secondly, the language of **LD** is not English, nor any other entrenched natural language, but an invented, formal language which includes sentences like "$\forall x Located(x, here) \rightarrow Exists(x)$)." Even if it could be justified, the claim that the language of LD is committed to the existence of locations does not entail that English is committed to the existence of locations.

Yet comparison with Kaplan's work still suggests some fruitful questions about Rothstein's semantics. For example the language of LD contains predicates that are mixed; they take both individual- and location-terms. Rothstein argues that the English word "place" is a one-place predicate of locations $\langle l, t\rangle$, but are there any mixed predicates? Looking at Kaplan suggests that the "be" in the philosophically controversial sentence:

(20) I am here.

is a natural candidate.

But a moment's reflection also reveals that we are phrasing our question for a logician, and not for a functional type theorist. To the question above a such a theorist could flat-footedly reply that there can be no mixed predicates, simply because there are no non-unary predicates. But a comparable phenomenon within Rothstein's system would be this: We take the ordinary copula "be" to be of type $\langle\langle d, t\rangle, \langle d, t\rangle\rangle$. Could there also be a "be" of type $\langle\langle l, t\rangle, \langle d, t\rangle\rangle$, that is, a copula that turns a predicate of a location (here) into a predicate of an individual (is here)?

Philosophers since G. E. Moore (Moore, 1962) have distinguished the "is" of predication from the "is" of identity, a distinction that is retained in the linguist's distinction between equational and predicational statements. Rothstein's work suggests there might be a third "is": the "is" of location.

5 Significance

What exactly are the ontological and epistemic consequences of Rothstein's linguistic thesis? If English presupposes the existence of locations, does it follow that locations exist? Is it *analytic* and therefore a priori that locations exist? I doubt it. Though some might think that English's presupposition (in sense 2) of locations hands us a transcendental argument for the existence of locations, e.g.:

> Our language could not be the way it is if there were no locations.
> Our language is the way it is.
> ---
> Therefore, there are locations.

this argument seems as suspicious and paradoxical as McKinsey's famous argument for the existence of water (McKinsey, 1991) which was also based on presupposition in sense 2.

It is the presupposition of locations in sense 4 (according to which the language would not be useful unless the items in question existed) which promises less chimerical metaphysical and epistemological consequences. Some might think that the fact that in this case it gives us a *defeasible* argument in favour of the existence of locations: language only retains expressions which are useful, and the very usefulness of a concept is evidence that it is grounded (to use Jenkins' phrase) or at least satisfied, and so the marking of locations in English is evidence that there are locations. (Jenkins, 2005)

Yet contemporary physics teaches us that locations *don't* exist, at least not in the intuitive sense according to which a location is somewhere you could come back to at a later date. What we are left with is points in space-time. This is true despite the fact that thinking in classical Newtonian terms—according to which there *are* locations one may return to at a later date—is *useful*. Maybe more useful (because easier) for most purposes than thinking in terms of the theories of relativistic physics. It would seem that even if presence in our language entailed usefulness, usefulness does not entail existence.

Another approach that might be taken is Peter Unger's slightly mystical-sounding one, according to which languages may encode the theories of earlier speakers (where here there is no presumption, defeasible or otherwise, of accuracy):

> As it has to other philosophers, there occurred to me the idea of a theory of things embodied in our language, inherited from an ancestor language, or languages. ... The theory in our language represents the thinking, conscious or not, of people a very long time ago. These people were instrumental in the development of our

> language, by way of creative impact on one or another key ancestor of it. Their language was, or their languages were, developed to express an old theory. (Unger, 1971: 5)

If this is the right way to think of this kind of presupposition in language—as representing a kind of folk-theory—then the ontological and epistemic consequences would seem to be minimal: it just isn't that exciting to learn that people used to think that there were locations.

My preferred response is a lot like one of Frege's in "On Sense and Reference" and it has more significance for the right way to approach the philosophy of language than it does for metaphysics or epistemology. Frege has just argued that the Bedeutung (denotation) of a name is an object, namely, its referent. But then he considers an objection from people who don't believe in ANY objects:

> Idealists or sceptics will perhaps long since have objected: 'You talk, without further ado, of the Moon as an object; but how do you know that the name "the Moon" has any Bedeutung? How do you know that anything whatever has a Bedeautung?' I reply that when we say 'the Moon',...we presuppose a Bedeutung....Now we can of course be mistaken in the presupposition, and such mistakes have indeed occurred. But the question whether the presupposition is perhaps always mistaken need not be answered here; in order to justify speaking of the Bedeutung of a sign, it is enough, at first, to point out our intention in speaking or thinking. (Frege, 1985: 156)

Frege would not infer from the presence of names in our language that idealism is false (because objects exist). Similarly, we should not infer the existence of locations from the existence of locatives in our language.

My view is not exactly like Frege's: I tend to think in terms of the public language more than Frege did, and so I am less inclined to say that it is utterer's immediate *intentions*—as opposed to the public meanings of the words—which make the difference between something being a naming-expression or not, and similarly, which make something a locative expression, or not. Moreover I am less inclined to worry about what the speaker is presupposing, and more inclined to talk about what the expression is for. I still think something similar to Frege though, and that is that even if there were no objects, there are expressions *whose job it is*, if you like, to refer to objects, and even if there are no locations, there are expressions whose job it is to refer to locations, and others whose job it is to express properties of locations. This teleology does not come from nowhere—it is presumably related to speaker intensions in some way. Perhaps the locatives fail sometimes. Perhaps they fail always. But referring to places is still what these tools are for. If physicists tell us that there are no locations, then that just means that English given us a hammer, when there is no nail to be struck.

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