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Demonstratives and Their Linguistic Meanings

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In this paper, I present a new semantics for demonstratives. Now some may think that David Kaplan (1989a,b) has already given a more than satisfactory semantics for demonstratives, and that there is no need for a new one. But I argue below that Kaplan's theory fails to describe the linguistic meanings of 'that' and other true demonstratives. My argument for this conclusion has nothing to do with cognitive value, belief sentences, or other such contentious matters in semantics and the philosophy of mind. Rather, it appeals to the obvious fact that there can be true utterances of certain sentences containing several occurrences of the same demonstrative (for instance, 'That is taller than that'). My argument can be answered by making a fairly modest revision in Kaplan's theory. But I believe that the resulting revised version of Kaplan's theory ignores or distorts various important semantic features of 'that'. Thus I ultimately argue in favor of a more substantial departure from Kaplan's theory. Perhaps the most remarkable feature of the theory I favor is that it ascribes three distinct sorts of meanings to demonstratives.

1. Preliminaries

Indexicals are expressions whose reference varies from utterance to utterance, or from context to context: for example, 'I', 'today', 'you', 'that', 'there', and 'then'. Pure indexicals are (roughly) indexicals that refer "automatically" just in virtue of being uttered: the best examples

are 'I', 'today', 'yesterday' and 'tomorrow'. ('Here' and 'now' are often included, though the spatial and temporal extents of their referents seem to be determined by something other than mere utterance.) True demonstratives are indexicals which require something more than mere utterance in order to acquire a referent. The paradigm example of a true demonstrative is 'that'. Others include 'this', 'you', 'he', 'she', 'there', and 'then'.

I am mainly concerned in this paper with finding a semantics for true demonstratives. For convenience, I concentrate on 'that'. I use the term 'demonstrative' as an abbreviation for 'true demonstrative'.

Throughout this paper I will need to refer to the "extra something" beyond utterance that a demonstrative needs in order to secure a reference. Philosophers disagree about the nature of this thing. The early Kaplan (1989a, 489-91) thinks that it is typically a pointing gesture; the late Kaplan (1989b, 582-4) believes that it is a directing intention; Wettstein (1984) thinks it is a complex set of contextual cues. I am inclined to think that the late Kaplan is roughly right, but I cannot take the space I would need to argue for this here.[1] Thus I propose simply to choose a term and stipulate that it refers to this "something extra", whatever it may be. I choose to use the term demonstration in this way. It will do no harm (for the purposes of this paper) to think of demonstrations as pointing gestures; but it should be kept in mind that, as I am using the term, demonstrations might well turn out to be something entirely different. I will say that a demonstrative can be associated with a demonstration. A demonstration in some way "picks out" an object, which ends up as the reference of its associated demonstrative. I will say that such a demonstration presents an object.

One reason that indexicals are interesting is that they seem to have at least two sorts of

meanings. Consider the following utterances.

Mary: "I am female."

John: "I am female."

Mary's utterance and John's utterance clearly have some meaning in common, just in virtue of being utterances of the same sentence. Similarly, the word 'I' has a single meaning, shared by Mary's and John's utterances of it. This is what I am calling the linguistic meaning of each expression and its utterances. It is the meaning of an expression that is fixed by the linguistic conventions of English, and shared by all utterances of the expression. But Mary's and John's utterances also seem to differ in meaning in some respect, for their utterances of 'I' differ in reference and their utterances of the sentence differ in truth value. Moreover, their utterances of the sentence seem to say different things, or express different propositions. Thus their two utterances of 'I' must differ in what they contribute to the propositions expressed by the utterances, despite having the same linguistic meaning. In fact, it seems that Mary's and John's utterances of 'I' refer to different people and have different propositional contents because of the linguistic meaning of 'I'. Thus we can conclude that 'I' has at least two sorts of meaning, and that its linguistic meaning plays some role in determining its varying reference and propositional content.

2. Kaplan's Theory

David Kaplan (1989a,b) has an intuitively appealing theory of the meanings of utterances containing pure indexicals (such as John's and Mary's utterances above). But as we will see, there are features of his theory which make it difficult for his theory to account for the linguistic

meanings of true demonstratives.

According to Kaplan's theory, indexicals have two different sorts of meaning, character and content. Indexicals vary in their content from context to context. For instance, the word 'I' has different contents in (or relative to) different contexts; its content in any context is just the person to whom it refers in the context, namely the agent of that context. The content of a full sentence, in a context, is a structured proposition which has as constituents the contents of the meaningful parts of the sentence.[2] This is also the proposition that the sentence expresses in that context. For instance, the content of 'I am female' in a context in which Mary is the agent is a structured proposition which we can represent with the ordered pair

< Being-female, Mary >.

The character of an expression, in Kaplan's theory, is a meaning that determines its content in any context. Thus Kaplan represents the character of an expression with a function from contexts to contents. For instance, the character of 'I' is represented by a function whose value at each context is the agent of the context. The character of 'I am female' is represented by a function whose value at each context is the proposition that A is female, where A is the agent of the context.

Thus the character of an expression is a meaning that the expression has "independently of context"; so it is a meaning that all utterances of the expression share. This meaning has a role in determining the propositional content of an expression in a context. Moreover, it's plausible to suppose that it is fixed by linguistic convention. Therefore Kaplan often identifies the linguistic meaning of an expression with its character (although he sometimes does this rather tentatively).[3]

But there is a compelling reason why Kaplan should not identify the linguistic meanings

of demonstratives with characters: this thesis entails, given certain other assumptions that Kaplan accepts, a clearly false conclusion about certain sentences containing multiple occurrences of the same demonstrative. Consider (1).

(1) That is bigger than that.

The two occurrences of 'that' in (1) have the same linguistic meaning.[4] So if linguistic meaning is the same as character, then the two occurrences of 'that' in (1) have the same character. Now if two expressions (or two occurrences of an expression) have the same character, then they have the same content in every context. So if linguistic meaning is character, then the two occurrences of 'that' in (1) have the same content in every context. But the content of (1) in a context is determined by the contents of its constituents in that same context. So in every context, (1) expresses the proposition that x is bigger than x, where x is the content of 'that' in that context. But no object is bigger than itself. So if linguistic meaning is the same as character, then (1) expresses a false proposition in every context. Thus it should be impossible to utter (1) truly. But this is clearly wrong: there can be true utterances of (1) in which the two utterances of 'that' refer to different objects.

So it seems that Kaplan cannot, or should not, identify the linguistic meaning of a demonstrative with a character (at least not given other assumptions he makes). And as a matter of fact, the theory of true demonstratives that Kaplan explicitly presents (from here on I will call it 'Kaplan's theory') is inconsistent with this identification, because it does not assign a single unique character to 'that'. Let me explain.

Kaplan's theory of true demonstratives[5] makes use of a formal language that has an infinite supply of that's distinguished by subscript: $that_1$, $that_2$, $that_3$, ... So the formal

language of his theory contains sentences (roughly) like

That$_1$ is bigger than that$_2$.

Kaplan's semantics for this formal language allows contexts to contain sequences of demonstrata. The content of 'that$_1$' in a context is the first demonstratum of the context, the content of 'that$_2$' is the second demonstratum, and so on. So that's with different subscripts have different characters: the character of 'that$_1$' is a function from contexts to the first demonstratum of each context, the character of 'that$_2$' is a function from contexts to the second demonstratum of each context, and so on. The formal sentence above expresses a true proposition in contexts in which the first demonstratum is different from the second.

But how can the semantics of Kaplan's formal language be used to give a semantics for English? Two ways come to mind. Kaplan could claim that the English expression (or sound-sequence) 'that' is ambiguous as far as character goes. On this rather implausible view, English contains many distinct demonstrative words that sound the same, but which differ in character (just as English contains two words that are spelled 'b'-'a'-'n'-'k', but which differ in character). So on this view, the formal sentence above is one "disambiguation" of (1) in an unambiguous formal language.

But Kaplan usually seems to advocate a second, more plausible, way of relating the semantics of the formal language to English. On this second view, English contains a single demonstrative word 'that'. But the English word by itself cannot have a content (or referent) in a context; it must be associated with a demonstration in order to have a content. Therefore the word 'that', by itself, does not have a character; only "combinations" of the word 'that' with demonstrations do. The subscripted that's of Kaplan's formal language represent combinations of

the English word 'that' with demonstrations; the formal sentence above represents a combination of (1) with two distinct demonstrations. So on this view, Kaplan's semantics assigns characters to combinations of 'that' with demonstrations, but does not assign a character to the word 'that' itself.[6]

On either way of relating Kaplan's formal language to English, the linguistic meaning of 'that' cannot be a character. For on the first version of Kaplan's theory, different utterances of 'that' are often utterances of different words with different characters. On the second version, the (single) word 'that' has no character. So neither version of Kaplan's theory ascribes a unique character to the word 'that' and its utterances. But the linguistic meaning of 'that' (whatever it may be) is a (unique) meaning of the expression which all of its utterances have in common. Thus Kaplan's theory implies that the linguistic meaning of 'that' is not a character.

So the situation is this. The only sorts of meaning that Kaplan describes are character and content.[7] Clearly the linguistic meaning of 'that' cannot be a content; that leaves character as the only possibility. Kaplan sometimes says that linguistic meaning is character; but this identification is grossly implausible, for given other principles that he accepts, it implies that (1) expresses a false proposition in every context. Furthermore, Kaplan's theory of demonstratives is inconsistent with identifying the linguistic meaning of 'that' with a character. Thus no matter how Kaplan is construed, he fails to describe a plausible candidate for the linguistic meaning of 'that'.[8] [9]

I believe that Kaplan is not alone in his troubles with the linguistic meanings of demonstratives. Many theorists who write about indexicals follow Kaplan in saying that the linguistic meaning of a demonstrative can be represented by a character-like function from

contexts to contents (or by a quite similar function). But when they consider sentences like (1), they (like Kaplan) refuse to assign the same character to all occurrences of 'that'. Thus on closer inspection they seem not to identify linguistic meaning with character. As a result they are left without a description of the linguistic meaning of 'that'.[10] Notice, moreover, that Kaplan's problems are not due to his taking the content of a demonstrative to be its referent. Thus even Fregean theories of demonstratives could have similar problems.

3. Three Unsatisfactory Responses to the Problems

I will eventually present a semantic theory that avoids the problems of Kaplan's theory and captures the linguistic meaning of 'that'. Meanwhile, though, I want to consider three responses to the above problems (all of which I have encountered at one time or another). These responses say either that the problems I have found with Kaplan's theory are spurious or that the solutions of the sort that I will present later are misguided. Needless to say, I think that none of them is plausible.

The first response simply denies that the word 'that' has a linguistic meaning. According to it, the rules of English allow the word 'that' to be used in a context for demonstrative reference. So utterances of 'that' can have a content when used in a context (and with a demonstration). But until the word is so used, it is an empty and meaningless form. So there is no linguistic meaning that all utterances of 'that' must share simply in virtue of being utterances of the same word.[11]

This response strikes me as extremely implausible; it is surely not justified by the problems raised by multiple occurrences of 'that'. But in reply, we can point out that our reasons for thinking that true demonstratives (like 'that') have linguistic meanings are the same as our

reasons for thinking that pure indexicals (like 'I' and 'today') do.[12] For first of all, competent users of the language have a strong intuition that all utterances of 'that' have some meaning in common, just as they do with 'I' and other pure indexicals. Furthermore, the word 'that' is "defined" in dictionaries of English, and there are standard translations of it into other languages (again, as with 'I'). Finally (as the response admits) there are conventional rules of English that determine the conditions under which the word 'that' refers to an object---again, just as with 'I'.[13] So if we claim that 'that' lacks a linguistic meaning, then we should also claim that all pure indexicals lack linguistic meaning. But this last claim is surely unacceptable, especially in light of the above considerations; so we can conclude that 'that' does have a linguistic meaning.

A second (more common) response to Kaplan's problems with multiple occurrences says that I have ignored some of the resources of his theory. A description of the linguistic meaning of 'that' can be derived from Kaplan's theory by generalizing in a certain way over the characters of the subscripted that's in his formal language. Each of the subscripted that's has the following semantic property:

> having as its content in each context some demonstratum (or other) of that context.

This semantic property, it might be claimed, can be identified with the linguistic meaning of the English word 'that'.

This second response is a more substantial departure from Kaplan's views than its advocates may realize. The above property is not a character; so this response denies that the linguistic meaning of 'that' is a character; it attributes a third meaning to demonstratives besides character and content. Now I don't think it is a bad idea to ascribe a third meaning to

demonstratives (I argue below that we should). But I believe that the above property is not a plausible candidate for the linguistic meaning of 'that'. The linguistic meaning of 'that' should determine the content of 'that', given "factors" like contexts and demonstrations. But the above property cannot determine the content of 'that' in this way. So the main feature of the property that recommends it as a candidate for the linguistic meaning of 'that' is that it is a (semantic) property that all occurrences of 'that' have in common. But that is not enough. Consider an analogous candidate for the linguistic meaning of all proper names, the property of referring-to-some-individual. All proper names (for instance, 'Clinton' and 'Bush') have this property. Nevertheless, it is not true that all proper names have the same linguistic meaning.

The third response that I wish to consider does not attempt to defend Kaplan's theory, but instead proposes a radical alternative. Kaplan's theory evaluates expressions in contexts to obtain contents. It has problems with (1) because (1) seems (at first glance) to have two occurrences of the same expression that can have different contents in the same context. But the trouble can be completely avoided if we insist that our semantic theories assign contents to utterances rather than expressions-in-contexts. Any utterance of (1) contains two distinct utterances of 'that'. An utterance theory can easily assign distinct contents to those two utterances, even though they are utterances of the same expression. For instance, a content rule for utterances of roughly the following sort could do that.

> If u is an utterance of 'that', then the content of u is x iff: x is the object demonstrated by the person who utters u at the time she utters u.

The linguistic meaning of 'that' on such a theory might be (represented by) a function from utterances to demonstrated objects.

Let's say that semantic theories that evaluate expressions for content at "points of evaluation" (like contexts) are expression theories. There are at least two reasons why we should not abandon expression theories in favor of utterance theories. First, the theories of demonstratives that I will present later are expression theories; if these theories are successful, then it is unnecessary to give up expression theories for pure utterance theories.[14] Second, pure utterance theories have certain unattractive limitations.

To see these limitations, let's suppose (for the moment) that the best expression theories assign contents to expressions-in-contexts. Consider a sentence consisting of 'I exist now' conjoined with itself ten trillion times; and consider a context which has me as its agent and which lasts less than one minute (i.e., the time assigned to 'now' by the context is less than one minute). An expression theory can assign a content to this sentence in this context; it can even (correctly) entail that the sentence expresses a true proposition in this context. But there is no (actual or possible) utterance of this sentence to which an utterance theory can assign this content. For I have never actually uttered this sentence; and it is not even possible for me to utter this sentence within the time frame of the context.[15] (It's doubtful whether I could utter this sentence within any time frame.)

Utterance theories also have a second sort of limitation. (Here I am indebted to Kaplan 1989b, 584.) Consider the sentence 'I am not talking now'. An expression theory can (correctly) entail that this sentence expresses a true proposition in contexts in which the agent is not talking. But no utterance of this sentence can be true.

In seeking expression theories for demonstratives, we do not have to give up on ascribing semantic properties to utterances. We can use an expression theory to attribute meanings to

utterances by using (more or less) Kaplan's method: we can attribute to an utterance of a (disambiguated) expression the same meanings that the expression has relative to a context determined (in "the right way") by the circumstances of the utterance. Thus we can also use semantic facts about utterances to test and motivate expression theories.[16]

4. The Context Shifting Theory

As I indicated before, I will present two distinct theories of demonstratives, both of which can deal with the problems of multiple occurrences of demonstratives and both of which present reasonable candidates for the linguistic meaning of 'that'. The first theory that I describe below is a rather modest revision of Kaplan's theory. I call it the Context Shifting Theory. It may provide the most obvious solution to Kaplan's problems with multiple occurrences of demonstratives.

On Kaplan's theory, a single expression (with a single character) may have two different contents in two different contexts. Kaplan's theory, however, does not allow two occurrences of a single expression within a single sentence to be evaluated for content in different contexts. But a liberalized Kaplan-like theory that allowed context shifts in midsentence could allow the two occurrences of 'that' in (1) to have different contents, even if they had the very same character. This single character could then be identified with the linguistic meaning of 'that'.

This liberalization of Kaplan's theory is easy to motivate by looking at utterances involving 'that'. Suppose that Mary first utters 'That is a car' while pointing at a Cadillac, and then immediately utters 'That is a car' again, while pointing at a Toyota. Her utterances of 'that' have different contents because the demonstrations associated with them are different; as a result, her utterances of the sentence differ in content. Kaplan's theory responds to this sort of

phenomenon by allowing a single sentence to have different contents in two different contexts (one of which has the Cadillac as its demonstratum and the other of which has the Toyota as its demonstratum). But now suppose that Mary utters (1), while pointing first at the (large) Cadillac and then at the (small) Toyota. Once again it seems that her utterances of 'that' have different contents because they are associated with different demonstrations. Yet Kaplan's theory does not respond to this case by allowing the two occurrences of 'that' in (1) to be evaluated for content in different contexts.

The basic idea of the Context Shifting Theory is to modify Kaplan's theory so that the content (in a context) of a sentence containing several occurrences of a demonstrative may be determined by more than one context. This will allow two occurrences of 'that' in a single sentence (like (1)) to have different contents and yet have a single character. I will now present one way of developing this idea.[17]

Let's return to Mary's utterance of (1). Call the Cadillac and the Toyota that she points at 'Carl' and 'Tricia', respectively. On the Context Shifting Theory, we view Mary's utterance, demonstrations, and surrounding circumstances as determining a certain context and a certain sequence of (subsequent) contexts. Carl and Tricia are the demonstrata of each of these contexts. But at the beginning of Mary's utterance, Carl is the demonstrated object; so on this theory, Mary's utterance determines a context in which Carl is the focal demonstratum; as a result Carl is the content (and referent) of the first occurrence of 'that' in this context. As Mary completes her utterance, Tricia becomes the demonstrated object. Within the theory, this is represented as a shift to a new context in which the focal demonstratum is Tricia. So Tricia becomes the content of the second occurrence of 'that'. Finally, the character of 'that' is represented by a function

whose value at any context is the focal demonstratum of the context. This character is the linguistic meaning of 'that'.

Here is the theory stated more generally and precisely. First, every context has associated with it a sequence of demonstrata. The members of the sequence need not be distinct. These demonstrata serve as the contents and referents of occurrences of 'that'. Second, each context has exactly one demonstratum that is in focus (the focal demonstratum). For instance, if < $\mathbf{d_1}$, d_2, d_3, . . . , d_n > are the demonstrata of context c, then one of them (indicated here by boldface) is the focal demonstratum of c. Third, the content of 'that' in a context is the focal demonstratum of that context. Fourth, and most importantly, a "shift" in focal demonstratum "occurs" after each occurrence of 'that'. To put it a bit more precisely: A sentence containing several occurrences of 'that' may be evaluated for content at a particular context. The content of the first 'that' is fixed by this context. The content of the second occurrence of 'that' is determined by a context which is just like the original context, except that the focal demonstratum in the new context is the next demonstratum in the sequence of demonstrata of the original context. And so on, for further occurrences of 'that'. There is no shift in context when an expression other than 'that' is evaluated for content.

Let me illustrate using sentence (1) and the context determined by Mary's utterance of (1). I will use '[E]c' to stand for the content of expression E in context c. Call the context we are considering 'c_0'. This context has Carl and Tricia as its demonstrata (in that order). Carl is the focal demonstratum of this context (because he is the demonstratum as Mary begins her utterance). On this theory, the content of (1) in c_0 is as follows.

['That is bigger than that']c_0 = < ['Is-bigger-than']c_0, ['that']c_0, ['that']c_1 >.

(Notice that there are no subscripts on the occurrences of 'that'.) The content of the full sentence in $\underline{c}_0$ is determined by the contents of its constituent expressions in two contexts, $\underline{c}_0$ itself and $\underline{c}_1$. The content of the predicate 'is-bigger-than' in the context $\underline{c}_0$ is simply the relation of being-bigger-than. The first occurrence of 'that' is evaluated for content in the very same context as the predicate, since the predicate is not an occurrence of 'that' and so there is no shift in context. Carl is the focal demonstratum of $\underline{c}_0$, so the content of the first occurrence of 'that' is Carl. The second occurrence of 'that' must be evaluated for content in a new context, since an occurrence of 'that' has already been evaluated. The new context $\underline{c}_1$ is just the same as $\underline{c}_0$, except that the focal demonstratum of $\underline{c}_1$ is Tricia rather than Carl. So the content of the second occurrence of 'that' is Tricia. Thus we get the result

$$< \text{['Is-bigger-than']}\underline{c}_0, \text{['that']}\underline{c}_0, \text{['that']}\underline{c}_1 > = < \text{Being-bigger-than, Carl, Tricia} >.$$

I give more details of the theory in the first appendix.

On the Context Shifting Theory, the word 'that' has a single character, which is identified with the linguistic meaning of 'that'. Yet (1) can express a true proposition in some contexts (like $\underline{c}_0$ above). So the Context Shifting Theory solves the problems that multiple occurrences of 'that' pose for Kaplan's theory.

5. The Three Meaning Theory

The Context Shifting Theory both solves Kaplan's problems with multiple occurrences of demonstratives and presents a reasonable candidate for the linguistic meaning of 'that'. But I believe that in other respects it is not everything that we want from a semantics for demonstratives. In particular, I think that the Context Shifting Theory fails to capture various

important semantic properties of demonstratives. But I believe that there is another theory of demonstratives which does capture these features, and which also solves the problems with multiple occurrences. In this section, I sketch and motivate this theory. In the next section, I argue that it is superior to the Context Shifting Theory.

The theory that I prefer is, like the Context Shifting Theory, a sort of liberalization of Kaplan's theory. But it differs from Kaplan's theory and the Context Shifting Theory in two important respects. First, demonstrations are explicitly represented within this theory. (In the other theories, demonstrations are represented only implicitly, at best, by sequences of demonstrata.) Second, this theory distinguishes between the linguistic meaning of 'that' (on the one hand) and the character that it acquires when it is associated with a demonstration (on the other). As a result, this theory attributes three distinct sorts of meanings to demonstratives. Thus I call it the Three Meaning Theory.

There are at least two ways to motivate the Three Meaning Theory. One way (the more technical way, perhaps) is by generalizing on Kaplan's theory, as follows. Consider Mary's utterance of (1) again. Mary associates different demonstrations with her two utterances of 'that'. This is why Kaplan's theory views Mary's utterance as an utterance of a "disambiguated" formal sentence like 'That$_1$ is bigger than that$_2$'. Thus Kaplan's subscripted that's (in effect) represent combinations of the English expression 'that' with demonstrations. It's therefore natural to suppose that the subscripted that's of Kaplan's formal language are "really" composed of two meaningful parts, the expression 'that' and a subscript representing a demonstration. If so, then we would expect the character of a complete demonstrative term ('that' + subscript) to be determined by the meanings of these two parts. Now the subscript simply represents a

demonstration. So the meaning of 'that' should "carry us" from a demonstration to the character of an entire subscripted term. Thus the meaning of 'that' in Kaplan's formal language could be represented by a function from demonstrations to characters.

But as I said before, Kaplan's subscripted that's are formal representatives of word-demonstration combinations. So it's natural to attribute the above functional meaning to the English word 'that'. Since this meaning attaches to the expression 'that' and so must be shared by all utterances of 'that', we can conclude that it is the linguistic meaning of 'that' in English. Thus we can conclude that the linguistic meaning of 'that' in English is (represented by) a function from demonstrations to characters. So we get the following (rough) picture of the linguistic meaning of 'that'.

linguistic meaning + demonstration $\rightarrow$ character

This feeds into the Kaplanian diagram:

character + context $\rightarrow$ content.

So demonstratives have three sorts of meanings: linguistic meaning, character, and content.

The Three Meaning Theory is also strongly suggested by more commonplace observations about demonstratives, as follows. The word 'that' by itself cannot refer; it must be associated with a demonstration in order to be capable of referring. Thus associating a demonstration with a demonstrative endows the demonstrative with a new semantic property that it does not have by itself. So we can conclude that associating a demonstration with the word 'that' gives the word a new meaning. Now clearly the word 'that' has this linguistic function (of acquiring a new meaning when associated with a demonstration) because of its linguistic meaning. So the linguistic meaning of 'that', together with a demonstration, determines this new

meaning for the demonstrative. So we can represent the linguistic meaning of 'that' with a function from demonstrations to this new sort of meaning. We can see what this new meaning is like by thinking about how demonstrations determine contents. A demonstration determines the content of a demonstrative by presenting an object. But the object that a demonstration presents is determined by context. So the new meaning that results from "combining" a demonstrative with a demonstration should be a meaning that determines a content given a context. But that is exactly what a character does. So the linguistic meaning of 'that' can be represented by a function from demonstrations to characters. Thus demonstratives have the three meanings that the Three Meaning Theory attributes to them.

6. The Three Meaning Theory and Some Semantic Features of Demonstratives

I think that the Three Meaning Theory is intuitively appealing; it seems quite plausible to me that 'that' has one sort of meaning in and of itself, another meaning when combined with a demonstration, and yet another (a referent or content) when placed in a context. I now wish to show that the Three Meaning Theory also successfully captures several important semantic features of demonstratives which the Context Shifting Theory and Kaplan's theory fail to capture.

6.1. Contrasting Pure Indexicals and True Demonstratives

As I've mentioned before, demonstrations have no "real presence" in Kaplan's theory. They don't appear in contexts or anywhere else. As a result, pure indexicals and true demonstratives look very similar in Kaplan's theory: both are merely context sensitive expressions.[18] Similarly for the Context Shifting Theory. But in the Three Meaning Theory,

demonstrations are explicitly represented. As a result, pure indexicals and true demonstratives look quite different. Pure indexicals stand out because they are demonstration insensitive: the character of 'I', 'today', and other pure indexicals does not vary from demonstration to demonstration. In contrast, a true demonstrative within the Three Meaning Theory is demonstration sensitive: its character varies from demonstration to demonstration. That is, its character depends upon the demonstration that it is associated with. Thus the Three Meaning Theory makes a satisfyingly sharp distinction between pure indexicals and true demonstratives.

6.2. Reference Failure

Demonstratives can fail to refer in two distinct ways.[19] Suppose, for instance, that Fred utters 'That is a dog' while performing no demonstrations (while making no pointing gestures and while having no intentions to refer to any object as he utters 'that'). Thus Fred's utterance of 'that' fails to refer. This case is one sort of reference failure. It is peculiar because the utterance doesn't even begin to "get off the ground". It seems linguistically defective. It seems not to be "fully meaningful," in some sense. It is incomplete, as Kaplan (1989a, 491) puts it. Contrast Fred's case with the case of George. George believes that there is a dog before him. He wishes to refer to the dog before him, and he points at it as he utters 'That is a dog'. But he is hallucinating; there is no dog, or any other object, to serve as the referent of his utterance of 'that'. George's utterance is linguistically perfect. His utterance is complete (as Kaplan might put it) and "fully meaningful" (in the same sense of 'meaning' as before). But it still fails to refer.

The Three Meaning Theory captures these differences in an intuitively appealing way, by attributing them to a difference in character. In Fred's case, there is no associated demonstration.

So 'that' gets no character and is (in that sense) "not fully meaningful". Furthermore, without a character, the word 'that' cannot have a referent (or content) in any context. So his utterance is "linguistically defective" and cannot "get off the ground". George, on the other hand, associates a demonstration with his utterance of 'that'; so in his case, the expression 'that' does acquire a character and so is "fully meaningful". This character can determine a referent (and content) in some contexts, though it happens not to in George's context.

So the Three Meaning theory can make a satisfying distinction between the two sorts of reference failure. The Context Shifting Theory cannot. For according to it, the word 'that' has the same character and same (null) content in both Fred's and George's cases. There is no difference in meaning between the two cases, and no satisfying account of why one case seems to be more radically defective than the other.[20]

6.3. Multiple Occurrences of 'That' With the Same Reference

Suppose that John is looking at the aircraft carrier Enterprise.[21] He is standing some distance away from the ship, and his view of the middle of it is obscured by a building, so that he sees only the stern of the ship off to his left and only the bow of the ship off to his right. After a while, he realizes that they are parts of the same ship. So he utters, "Obviously...

(2) That is identical with that [pointing once at the bow during the entire time].

He then continues, "But also...

(3) That is identical with that [pointing first at the bow and then at the stern].

Notice that all four utterances of 'that' described in (2) and (3) refer to the same thing, the Enterprise. So all four have the same content. Moreover, the four utterances of 'that' clearly have

the same linguistic meaning. But I think that many of us have the intuition that John's utterances in (2) and (3) differ in meaning in some respect. And so we think that his two utterances of 'that' in (3) must differ in meaning in some respect. If this intuition is reliable, then there is a third sort of meaning, distinct from both content and linguistic meaning, which the two utterances of 'that' in (3) do not share.

Kaplan's theory can account for the intuition that there is a difference in meaning, for his theory can represent John's second utterance with the formal sentence 'That$_1$ is identical with that$_2$'. The two subscripted that's differ in character, even if they happen to co-refer in John's context. So Kaplan's theory (in effect) ascribes different characters to John's two utterances of 'that' in (3).

The Three Meaning Theory can also ascribe different characters to John's two utterances of 'that' in (3), for his two utterances are associated with different demonstrations, and this can result in a difference in character, according to the theory.[22] Thus the Three Meaning Theory can preserve this intuitive aspect of Kaplan's theory. And it can do this even though the two utterances have the same linguistic meaning and content. Notice, however, that the Context Shifting Theory cannot. It says that the two utterances of 'that' in (3) have the same character and the same content (given the contexts involved); moreover, it recognizes no other meaning. So it must say that they don't differ in meaning in any way.

Therefore if our intuition that there is a difference in meaning between John's utterances in (2) and (3) is reliable, then we have a reason to favor the Three Meaning Theory over the Context Shifting Theory. But is this intuition reliable?

It might be said that John's utterances in (2) and (3) must differ in meaning because they

differ in cognitive value. (A person listening to John could understand both utterance (2) and utterance (3), and yet assent to the first and reject the second.) I agree that this is some reason to think that utterances (2) and (3) differ in meaning, but I think we should not give it much weight. For I believe that there are cases in which a difference in cognitive value should not be explained by a difference in semantic value. For instance, I believe that the difference in cognitive value between 'Hesperus is Hesperus' and 'Hesperus is Phosphorus' should not be attributed to a difference in meaning between the two sentences.[23]

But there is another reason to think that there is a genuine difference in meaning. There is an important kind of potential for a difference in reference between John's two utterances of 'that' in (3). Keep the linguistic meaning of 'that' fixed, and keep John's demonstrations fixed, and still his utterances of 'that' in (3) have the potential for referring to different objects. For if the context had been different---if, for instance, the ship in front of John had not been the Enterprise but rather two smaller (oddly shaped) ships---then his utterances of 'that' would have referred to different objects. This sort of potential difference in reference (and content) looks like the sort of difference that a semantic theory should recognize as a difference in meaning.

6.4. Universal Truth

Let's retum to John's first utterance, described in (2).

(2) That is identical with that [pointing once at the bow during the entire time].

John's utterance expresses a true proposition. In fact, there is something about John's first use of 'That is identical with that' which guarantees that his utterance of it expresses a true proposition. If we keep fixed the linguistic meaning of 'that', and keep fixed John's single demonstration, then

his utterance expresses a true proposition no matter what object he refers to in his context.

Kaplan's theory would represent John's first utterance by a formal sentence in which the two occurrences of 'that' have the same subscript.

(4) That$_1$ is identical with that$_1$.

The subscripts here indicate that the two occurrences of 'that' have the same character and so have the same referent and content in every context. Thus (4) is a sort of "universal truth": a sentence that is true in every context. This seems to capture something important about John's first use of 'That is identical with that' (given his single demonstration).[24]

The Three Meaning Theory can also ascribe the same character to John's two utterances of 'that' in (2), since they are associated with the very same demonstration. So the Three Meaning Theory can say that the sentence 'That is identical with that', given John's demonstration, expresses a true proposition in every context. In that sense, John's first utterance (or his use of the sentence) is "universally true," according to the Three Meaning Theory.[25] The Context Shifting Theory, however, altogether misses the "truth guaranteed" feature of John's first utterance. It is simply <u>not</u> the case on the Context Shifting Theory that 'That is identical with that' expresses a true proposition in every context. And this theory does not have the resources to distinguish between uses of the sentence which are "guaranteed to be true" (in all contexts) and uses which are not.

Notice that John's second utterance in (3) is not "guaranteed to be true" in the same sense as his first utterance in (2). So we now have further reason to accept our earlier judgment that John's two utterances in (2) and (3) differ in meaning.

6.5. Summary, and An Objection and Reply

This ends my arguments in favor of the Three Meaning Theory. I hope to have shown that the Three Meaning Theory does a good job of capturing the meanings of 'that' (especially the linguistic meaning of 'that') and that it does a better job of this than either the Context Shifting Theory or Kaplan's theory.

Let's suppose, then, that you are persuaded that demonstratives have three sorts of meanings. You might nevertheless object to the format of the Three Meaning theory. The Three Meaning Theory treats demonstrations as "points of evaluation" that are distinct from contexts. But why not treat demonstrations as yet another aspect of context? Contexts would then contain both demonstrations and demonstrata. The content of an expression would be "doubly dependent" on context: first on the demonstrations for character, and then on the demonstrata for content. So why separate demonstrations from contexts?

I think there are several good reasons. First, doing so allows us to make a strong contrast between pure indexicals and true demonstratives, and allows us to attribute a simple sort of universal truth ("true in all contexts") to certain sentences given certain demonstrations. Second, there is a strong intuitive contrast between demonstrations and features of context. Demonstrations are actions or events under the control of agents (assuming they are pointings or directing intentions or something like this).[26] In this respect, demonstrations are unlike paradigmatic elements of context needed to interpret indexicals, like the day on which the agent is speaking and the objects (demonstrata) surrounding the agent. Finally, it is important to distinguish between contents and things that determine contents. Contexts in the above theories include objects that are contents (for instance, agents, days, and locations). Demonstrations,

though, are not contents, but determiners of contents. So to maintain a distinction between contents and their determiners, it is a good idea to exclude demonstrations from contexts.[27]

7. Developing the Three Meaning Theory

Let's now consider how to develop the Three Meaning Theory in somewhat more detail. We first need to consider how to deal with multiple occurrences of demonstratives so as to avoid problems similar to Kaplan's. To do this, we must allow some sort of shifting of "content determiners" in midsentence. Consider (1) again.

(1) That is bigger than that.

According to the Three Meaning Theory, the two occurrences of 'that' in (1) have contents given an associated demonstration and a context. But since they have the same linguistic meaning, they can differ in content only if there is some difference in their associated demonstrations or in their contexts. So the Three Meaning Theory must allow for demonstration changes or context changes in midsentence. Our earlier look at utterances of sentences like (1) makes it natural to allow midsentence demonstration changes. Mary, for instance, performs two distinct demonstrations as she utters (1). At the beginning of her utterance, the first of these demonstrations is operative (determines the demonstratum); at the end of her utterance, the second demonstration is operative. Thus in the development of Three Meaning Theory below, I allow changes in operative demonstration in midsentence. This also allows the two occurrences of 'that' in (1) to have different characters, a result which is well motivated by the examples we considered earlier.

One convenient way to allow midsentence demonstration changes involves evaluating

expressions relative to sequences of demonstrations. I will call these sequences associations (of demonstrations with demonstratives). We can think of an association as a "point of evaluation" much like a context. An association associates demonstrations with occurrences of demonstratives, and thus endows them with characters. So we can picture the more fully developed version of the Three Meaning Theory in the following way.

linguistic meaning + association $-\!\!=$ character

character + context $-\!\!=$ content

One more remark about demonstrations and associations. The sole purpose of a demonstration (and an association), as far as the Three Meaning Theory is concerned, is to determine the characters of occurrences of 'that'. So in the theory we can afford to ignore every feature of a demonstration except its ability to endow a demonstrative with a character. This means that we can represent a demonstration with the character that it determines for its associated demonstrative, without fear of misrepresenting the demonstration. Since it is extremely convenient to do this, I will use characters to represent demonstrations, and sequences of characters to represent associations.

Here is the theory, in outline. An expression has a content relative to an association and a context. Every association contains a sequence of characters (representing demonstrations). The members of these sequences need not be distinct. One of these characters is the operative character of the association (representing an operative demonstration). The character of an occurrence of 'that', relative to an association, is just the operative character of the association. But a "shift" in association "occurs" after every occurrence of 'that' is assigned a character. A bit more precisely: if a sentence has several occurrences of 'that', then the character of the first 'that'

is determined by the first association and its operative character. The character of the second occurrence of 'that' is determined by an association just like the first, except that the new association has as its operative character the next character in the sequence of characters of the first association. And so on. A context contains a sequence of demonstrata (among other things). The demonstrata are the values of character functions when applied to the context, just as in Kaplan's theory. The content of an occurrence of 'that', relative to an association and context, is just the value of the operative character of the association when it is applied to the context. The linguistic meaning of 'that' is a function on associations whose value is the operative character of an association.

To illustrate, let's consider how the theory might deal with Mary's utterance. Mary's utterance, demonstrations, and surrounding circumstances determine both an association and a context. Her sequence of demonstrations is represented by an association consisting of a sequence of characters, $\underline{R}_1$ and $\underline{R}_2$. The first character is a function whose value at every context is the first demonstratum of that context. (This character is appropriate for representing Mary's first demonstration because her first demonstration does present the first demonstratum of her context.) The second character is a function whose value at each context is the second demonstratum of the context. The operative character of the association is the first character function $\underline{R}_1$. (This is appropriate because Mary's first demonstration is operative when she begins her utterance.) The relevant context contains (among other things) a sequence of demonstrata consisting of Carl and Tricia, in that order. (This is appropriate because Carl and Tricia are the first and second objects that Mary's demonstrations present.)

Let's consider how the content of (1) is determined in the above association and context.

Let's use '[E]ac' to stand for the content of expression E relative to association a and context c. Let's also use 'a_0' to stand for Mary's association, and 'c' to stand for Mary's context. Then the content of (1) relative to Mary's association and context is

< ['Is-bigger-than']a_0c, ['that']a_0c, ['that']a_1c >.

Notice that there is no shift in association after the predicate, because shifts occur only after occurrences of 'that'. So the predicate and the first occurrence of 'that' are evaluated for content at the same association and context, namely a_0 and c. The content of the first occurrence of 'that' is whatever one gets when one applies the operative character of a_0 to c. R_1 is the operative character of a_0, and when it is applied to c we get Carl. The second occurrence of 'that' is evaluated at an association a_1 in which the operative character is the second character of the original association a_0. This is character R_2. So the content of the second occurrence of 'that', given this association and context c, is Tricia. Thus the content of (1) relative to Mary's association and context is

< Being-bigger-than, Carl, Tricia >.

I give more details of this theory in the second appendix.

The linguistic meaning of 'that' on the Three Meaning Theory is a function from associations to characters. But we can derive another intuitive description of the linguistic meaning of 'that' from this theory by describing how its linguistic meaning determines its content given both an association and context. We can derive the following rule immediately.

> The content of 'that' in an association a and a context c is x iff: x is the value of the operative character of a when applied to c.

We can derive an even more intuitive description by keeping in mind how the theory represents

demonstrations. The operative character of an association represents the operative demonstration of a sequence of demonstrations. And the value of the operative character function when applied to a context is just the object that the operative demonstration presents in that context. So we can ultimately derive the following rule from the theory.

> The content of 'that', given an association a of demonstrations with demonstratives, and a context c, is x iff: x is the object that the operative demonstration of a presents in context c.[28]

Appendix 1

To illustrate the Context Shifting Theory, I present below a semantics for a simple artificial language. The syntax of the language is basically that of predicate logic without quantification, with the addition of the indexicals 'that' and 'I'. The rules below specify the contents of expressions relative to contexts. The characters of expressions are specified afterwards. I do not give rules for determining truth conditions for contents (I assume that it is fairly obvious how to do this). I also do not attempt to define truth (or extension) in a model, or attempt to present a theory of logical (or semantic) consequence.

Syntax

Primitive Symbols

1. Individual Terms: 'that', 'I', 'Bill', 'Hillary'
2. Predicates: One-place: 'Human'; Two-place: 'Identical', 'Taller'
3. Connectives: '¬', '&'
4. Punctuation: '(', ')', ','

Formulas

5. If F^n is an n-place predicate, and $t_1, t_2, \ldots, t_n$ are individual terms, then $\ulcorner F^n(t_1, t_2, \ldots, t_n)\urcorner$ is a formula.
6. If ϕ and ψ are formulas, then $\ulcorner \neg \phi \urcorner$ and $\ulcorner (\phi \ \& \ \psi) \urcorner$ are formulas.

An atomic formula is a formula which does not contain any connectives.

Semantics

The semantics below assigns contents to expressions relative to contexts. I make the following assumptions concerning contexts.

(a) For every context c, there is exactly one denumerable sequence of individuals which is the sequence of demonstrata in c (in symbols, d_c). The i-th member of this sequence is the i-th demonstratum of c (in symbols, $d_{i,c}$).

(b) For every context c, there is exactly one member of d_c which is the focal demonstratum of c (in symbols, d^*_c).

(c) For every context c, there is exactly one individual who is the agent of c.

The semantics allows different expressions within a single formula to be evaluated for content in different contexts. Intuitively, we can think of an expression's content as being determined in a "process" that begins at the left-hand side of the expression. After each expression is "processed" (after its content is fixed) a shift in context occurs. The new context may or may not be distinct from the old context, depending on the expression just "processed". To describe how this context shifting occurs, I define a function s (for "shift") which takes expressions and contexts as its arguments, and yields a new (not necessarily distinct) context as its value. I use

s(E,c)

as my notation for the context which is obtained by applying this function to expression E and context c. Intuitively, s(E,c) is the context that results from "processing" expression E in context c to obtain its content in that context. I also use the following notation.

[E]c = the content of E relative to context c.

Thus my notation for the content of expression E□ relative to the context that results from

"processing" expression E in context c (that is, relative to context s(E, c)) is

[E]s(E, c).

Each clause in the semantics below breaks into a part a and a part b. Part a specifies the content of an expression relative to a context. Part b describes how the context shifts (if at all) after the expression is "processed" in a context. (I am indebted to Schubert and Pelletier 1989 for the processing metaphor and other aspects of the semantics below. See note 17.)

For every context c,

1. a. ['Bill']c = Bill, ['Hillary']c = Hillary.

   b. s('Bill', c) = c. s('Hillary', c) = c.

According to 1b, there is no context shift after a proper name is "processed" in c. In fact, the rules below entail that context shifts occur only after the expression 'that' is "processed" in a context.

2. a. ['I']c = the agent of c.

   b. s('I', c) = c.

3. a. ['that']c = d^*_c (the focal demonstratum of c).

   b. If $d^*_c = d_{i,c}$, then

      s('that', c) = c+,

      where c+ is that context which is just like c except that $d^*_{c+} = d_{i+1,c}$. (The context c+ is just like c, except that the focal demonstratum of c+ is shifted "one to the

right" in the sequence of demonstrata of the original context $\underline{c}$).

4. a. ['Human']$\underline{c}$ = the one-place property of being-human.

['Identical']$\underline{c}$ = the two-place relation of being-identical.

['Taller']$\underline{c}$ = the two-place relation of being-taller-than.

b. If $\underline{F}^n$ is a predicate, then $\underline{s}(\underline{F}^n, \underline{c}) = \underline{c}$.

5. a. ['~']$\underline{c}$ = NEG, the property of being a false proposition.

['&']$\underline{c}$ = CONJ, the relation of being jointly true propositions (a relation that holds between two propositions just in case both are true).

b. If % is a connective, then $\underline{s}(\%, \underline{c}) = \underline{c}$.

6. a. If $\ulcorner \underline{F}^n(\underline{t}_1, \underline{t}_2, \ldots, \underline{t}_n) \urcorner$ is an atomic formula, then

$[\ulcorner \underline{F}^n(\underline{t}_1, \underline{t}_2, \ldots, \underline{t}_n) \urcorner]\underline{c} =$

$< [\underline{F}^n]\underline{c}, [\underline{t}_1]\underline{s}(\underline{F}^n, \underline{c}), [\underline{t}_2]\underline{s}(\underline{t}_1, \underline{s}(\underline{F}^n, \underline{c})), \ldots, [\underline{t}_n]\underline{s}(\underline{t}_{n-1}, \ldots, \underline{s}(\underline{t}_1, \underline{s}(\underline{F}^n, \underline{c})) \ldots)$

>.

b. If $\ulcorner \underline{F}^n(\underline{t}_1, \underline{t}_2, \ldots, \underline{t}_n) \urcorner$ is an atomic formula, then $\underline{s}(\ulcorner \underline{F}^n(\underline{t}_1, \underline{t}_2, \ldots, \underline{t}_n) \urcorner, \underline{c}) = \underline{s}(\underline{t}_n, \underline{s}(\underline{t}_{n-1}, \ldots, \underline{s}(\underline{t}_1, \underline{s}(\underline{F}^n, \underline{c})) \ldots))$.

According to 6a, the content of an atomic formula $\ulcorner \underline{F}^n(\underline{t}_1, \underline{t}_2, \ldots, \underline{t}_n) \urcorner$ in context $\underline{c}$ is obtained in the following way. First, determine the content of $\underline{F}^n$ in $\underline{c}$. Then determine the content of $\underline{t}_1$ in the context that results from "processing" $\underline{F}^n$ in $\underline{c}$, namely the context $\underline{s}(\underline{F}^n, \underline{c})$. Next, determine the content of $\underline{t}_2$ in the context that results from "processing" $\underline{t}_1$ in the context that resulted from "processing" $\underline{F}^n$ in $\underline{c}$, namely, context $\underline{s}(\underline{t}_1, \underline{s}(\underline{F}^n, \underline{c}))$. And so on. The content of the formula is the proposition consisting of the content determined for the predicate, followed by the content

determined for the first term, followed by . . . , followed by the content of the last term.

7. a. If φ is a formula, then

$$[⌜±φ⌝]_{\underline{c}} = < [\text{'}±\text{'}]_{\underline{c}}, [φ]_{\underline{s}(\text{'}±\text{'}, \underline{c})} >.$$

b. If φ is a formula, then $\underline{s}(⌜±φ⌝, \underline{c}) = \underline{s}(φ, \underline{s}(\text{'}±\text{'}, \underline{c}))$.

8. a. If φ and ψ are formulas, then

$$[⌜φ \,\&\, ψ⌝]_{\underline{c}} =$$

$$< [\text{'}\&\text{'}]_{\underline{c}}, [φ]_{\underline{s}(\text{'}\&\text{'}, \underline{c})}, [ψ]_{\underline{s}(φ, \underline{s}(\text{'}\&\text{'}, \underline{c}))} >.$$

b. If φ and ψ are formulas, then $\underline{s}(⌜φ \,\&\, ψ⌝, \underline{c}) = \underline{s}(ψ, \underline{s}(φ, \underline{s}(\text{'}\&\text{'}, \underline{c})))$.

Definition The character of E (in symbols, [E]) is that function from contexts to contents whose value at each context c is the content of E relative to c (i.e., $[\underline{E}]_{\underline{c}}$).

It follows from this definition that the character of 'that' is that function whose value at every context c is the focal demonstratum of c. The character of 'I' is the function whose value at every context c is the agent of c. The characters of all other primitive expressions in the language are constant functions.

Remarks on Possible Additions and Modifications

The above theory could be extended to deal with other demonstratives such as 'you' and 'he'. For 'you', we could add a sequence of addressees to each context, and mark one of the members in each context as the focal addressee of the context. The shift function would have to

be redefined so that the focal addressee shifts after each occurrence of 'you' is "processed". The other rules would remain much the same. Similarly for other demonstratives.

On the above theory, the character of any expression, whether simple or complex, is an extensional function from contexts to contents. But in previous work I've argued that our semantic theories should assign structured characters to complex expressions. (See Braun, 1994.) We could modify the above semantic theory by assigning functional characters to the simple expressions and then inductively defining structured characters for complex expressions. I have also argued in previous work (Braun, 1995) that the character of a simple expression is not an extensional function on contexts, but rather a primitive, intensional relation between contexts and contents. To accomodate this idea in the above sort of theory, we could specify the intensional characters of the primitive expressions in the basis clauses, before specifying either the contents or structured characters of expressions.

The above theory assigns a denumerable sequence of demonstrata to every context. Thus it ignores the possibility of reference failure for demonstratives. To accommodate reference failure, we could require that all but a finite number of members of demonstrata sequences be either "null" or "inappropriate" (see note 20); the "null" and "inappropriate" positions could be marked with appropriately chosen objects. If the would-be content of a demonstrative in a context is marked "null", then the propositional content in that context of the sentence in which it appears would be a proposition with an unfilled position. (See Braun 1993, for more on this sort of proposition.) If the would-be content is marked "inappropriate", then the sentence in which the demonstrative appears would have no propositional content in that context.

Appendix 2

In this appendix, I illustrate the Three Meaning Theory by presenting a semantics for the language given in Appendix 1.

Syntax

The syntax of the language is the same as that of Appendix 1.

Semantics

The semantics below works very much like that of Appendix 1, except that (i) it specifies the content of each expression relative to pairs of associations and contexts; and (ii) there are shifts in association during the evaluation "process", rather than shifts in context. The characters and linguistic meanings of expressions are defined after the rules for content determination are given. I assume the following about contexts and associations.

(a) For every context c, there is a denumerable sequence of individuals, which is the sequence of demonstrata in c (in symbols, d_c). The i-th member of this sequence is the i-th demonstratum of c (in symbols, $d_{i,c}$).

(b) For every context c, there is exactly one individual who is the agent of c.

(c) There is a set of demonstrative characters, each member of which is a function from contexts to demonstrata in those contexts. For every member R of this set, there is a positive natural number i such that for every context c, $R(c) = d_{i,c}$. (Each function R picks out the i-th demonstratum in each context, for some i.)

(d) For every association a, there is a denumerable sequence of demonstrative characters, which is the sequence of characters of a (in symbols, R_a). The i-th member of the sequence is the i-th character of a (in symbols, $R_{i,a}$).

(e) For every association a, there is exactly one member of the sequence of characters in a which is the operative character of a (in symbols, R^*_a).

Association shifts "occur" only if the "previously processed" expression is 'that', and then the new association differs from the old association only in its operative character. As before, I define a "shift" function s, but in this case it takes expressions and associations as its arguments, and yields an association as its value. I use 's(E,a)' for the association which is obtained by applying this function to expression E and association a. I use '[E]ac' to stand for the content of E relative to association a and context c. Thus my notation for the content of expression E relative to the association that results from "processing" expression E in association a (that is, relative to association s(E, a)) and context c is '[E]s(E, a)c'. Since the semantics below is so similar to that of Appendix 1, I present only rule 1 and a few of the other crucial rules; the rest can be obtained by analogy with the semantic rules of Appendix 1. As in Appendix 1, part a of each clause specifies the content of an expression relative to an association and a context, while part b describes how the association shifts (if at all) after the expression is "processed".

For every association a and context c,

1. a. ['Bill']ac = Bill, ['Hillary']ac = Hillary.

   b. s('Bill', a) = a. s('Hillary', a) = a.

3. a. ['that']ac = R^*_a(c) (the operative character of a applied to context c).

b. If $\underline{R}^*_a = \underline{R}_{i,a}$, then

$\underline{s}$('that', $\underline{a}$) = $\underline{a}$+,

where $\underline{a}$+ is that association which is just like $\underline{a}$ except that $\underline{R}^*_{a+} = \underline{R}_{i+1,a}$. (The association $\underline{a}$+ is just like $\underline{a}$, except that the operative character of $\underline{a}$+ is shifted "one to the right" in the sequence of characters of the original association $\underline{a}$).

6. a. If $\ulcorner \underline{F}^n(\underline{t}_1, \underline{t}_2, \ldots, \underline{t}_n) \urcorner$ is an atomic formula, then

$[\ulcorner \underline{F}^n(\underline{t}_1, \underline{t}_2, \ldots, \underline{t}_n) \urcorner]\underline{ac}$ =

$< [\underline{F}^n]\underline{ac}, [\underline{t}_1]\underline{s}(\underline{F}^n, \underline{a})\underline{c}, [\underline{t}_2]\underline{s}(\underline{t}_1, \underline{s}(\underline{F}^n, \underline{a}))\underline{c}, \ldots, [\underline{t}_n]\underline{s}(\underline{t}_{n-1}, \ldots, \underline{s}(\underline{t}_1, \underline{s}(\underline{F}^n, \underline{a}))$

$\ldots)\underline{c} >$.

b. If $\ulcorner \underline{F}^n(\underline{t}_1, \underline{t}_2, \ldots, \underline{t}_n) \urcorner$ is an atomic formula, then $\underline{s}(\ulcorner \underline{F}^n(\underline{t}_1, \underline{t}_2, \ldots, \underline{t}_n) \urcorner, \underline{a})$ =

$\underline{s}(\underline{t}_n, \underline{s}(\underline{t}_{n-1}, \ldots, \underline{s}(\underline{t}_1, \underline{s}(\underline{F}^n, \underline{a})) \ldots))$.

Definition The character of E relative to association a (in symbols, [E]a) is that function from contexts to contents whose value at each context c is the content of E relative to a and c (that is, [E]ac).

Notice that by this definition the character of 'that' relative to association a is identical to the operative character of a, as defined earlier.

Definition The linguistic meaning of E (in symbols, [E]) is that function from associations to characters whose value at each association a is the character of E relative to a (that is, [E]a).

Remarks on Possible Additions and Modifications

The above theory could be extended to other demonstratives, such as 'you' and 'there', by suitable adjustments in contexts, associations, and the shift function. See "Remarks" in the previous appendix for how we might formulate a theory of structured characters and structured linguistic meanings, and also allow the characters and linguistic meanings of simple expressions to be intensional relations rather than extensional functions.

The above theory ignores all types of reference failure for demonstratives. One plausible way to accommodate reference failure is to do the following. First, allow some positions in associations and demonstrata sequences to be marked "null". Second, specify that if the would-be character of an occurrence of 'that' relative to an association is "null", then the sentence in which it occurs has no character in that association and expresses no content relative to any context. Third, if an occurrence of 'that' has a character in an association, but its would-be content with respect to a context is null, then the sentence in which it occurs expresses a proposition with an unfilled position, relative to that association and context.

Notes

1. For further discussion of the issue, see Bach (1992a,b) and Reimer (1991a,b), in addition to the works cited in the text.

2. Kaplan often represents contents with intensions (functions from world-time pairs to extensions). But he clearly prefers to think of contents as structured entities of the sort I present here. See his 1989a, 469-70; 1989b, 570-1.

3. See Kaplan 1989a, 505, 520-1, 523-4; 1989b, 568, 577-8.

4. Warning: I am using the term 'occurrence' differently from Kaplan. He uses the term for expressions-in-contexts (1989a, 522; 1989b, 584). On his terminology, if we consider (1) relative to a single context, we have just <u>one</u> occurrence of 'that'. Kaplan would say that (1) contains two <u>syntactic occurrences</u> of 'that' (1989b, 586). I use the term 'occurrence' in the more standard way, to mean what Kaplan does by 'syntactic occurrence'.

5. Kaplan (1989a) actually presents <u>two</u> distinct theories of true demonstratives. The theory that I present below is his <u>Indexical Theory</u>. I deal with his <u>Corrected Fregean Theory</u> in note 8.

6. The first way of reconciling the formal language with English is suggested (but not endorsed) by Barwise and Perry (1983, 133) and Crimmins (1995). The two ways might well come to much the same thing, for the many different demonstrative words of the first view may

be just "combinations" of the sound sequence 'that' with demonstrations. Word-demonstration combinations, as I think of them here, are types. Utterances come in a variety of expression types; token demonstrations also come in various types; and events that consist of an utterance performed with a (token) demonstration are tokens of "combined" word-demonstration types. These last types can be represented by ordered pairs of expression types and demonstration types. Notice that on both views given above, Kaplan's theory in effect says that expression (1) is never true in a context simpliciter. For on the first way, (1) can be true in a context only relative to an appropriate reading or disambiguation. On the second way, (1) can be true in a context only given appropriate demonstrations.

7. I am ignoring extension (with respect to a context, time, and world) throughout this paper, though this might also be considered a kind of meaning.

8. I first became aware of a problem with linguistic meaning in Kaplan's theory several years ago when re-reading Kaplan 1989b, 589. There he says that utterances containing several occurrences of demonstratives ". . . seem . . . to involve an exotic kind of ambiguity, perhaps unique to demonstratives." (The ambiguity he mentions here is a difference in character between subscripted that's.) I realized then that demonstratives must also have a certain sort of unexotic unambiguity, namely a single linguistic meaning. I have since then noticed that others have found related problems with Kaplan-style theories of demonstratives. Wettstein (1986, 196 n. 17) points out that when Kaplan discusses the cognitive value of 'That is identical with that', he (wrongly) attributes different characters (and thus different linguistic meanings) to the

occurrences of 'that'. Barwise and Perry (1983, 133-6) and Crimmins (1995) discuss subscripted pronouns in formal languages and what they (wrongly) suggest about the meanings of pronouns in English. I suspect that many others have noticed similar problems with Kaplan's theory of demonstratives.

My argument in the text concentrates on Kaplan's Indexical Theory (1989a, 528-9) because it has been the more influential of the two theories. But Kaplan's Corrected Fregean Theory (1989a, 524-7) has a very similar problem. The Corrected Fregean Theory uses dthat-terms to represent "combinations" of the English word 'that' with a demonstration. Dthat-terms have the form ⌜dthat[S]⌝ where S is a singular term. The content of a dthat-term in a context is the referent of S in that context. Kaplan uses definite descriptions within dthat-terms to represent demonstrations; the descriptions are supposed to capture the way in which a demonstration presents an object in a context. On this theory, if an utterance of (1) is true, then the two utterances of 'that' must have different associated demonstrations. Thus the two utterances of 'that' would be represented by different dthat-terms. For instance, a true utterance of (1) might be represented by a formal sentence like ⌜Dthat[the F] is bigger than dthat[the G]⌝. The two dthat-terms have different characters because they have different contents in the same context. Thus the theory (in effect) does not assign a character to 'that' alone, but rather to "combinations" of 'that' with demonstrations. So the linguistic meaning of 'that' on this theory cannot be a character.

9. Kaplan's theory of the linguistic meanings of 'that', 'he', etc. is also incomplete, in the following sense. Many "demonstrative" pronouns can be used in non-demonstrative ways. For instance, 'he' can be used as a "bound variable" (as in 'Every wealthy man believes he is smart',

on one reading), and as a "discourse anaphor" (as in 'John is wealthy. He inherited his money from his father'). Kaplan (1989a, 489; 1989b, 572 & 589) maintains that the demonstrative and anaphoric "uses" are homonyms, that is, distinct words that sound the same, like 'bank' and 'bank'. (Kaplan seems to count "bound variable" uses as "anaphoric".) He attempts to describe the linguistic meaning of the demonstrative 'he' only. I suspect, however, that there are <u>not</u> two homonymous words here, but rather a single pronoun with a single linguistic meaning. If I am right, then a complete theory of pronouns should attribute a single linguistic meaning to 'he' and yet also account for its various uses. (Similarly for 'that'.) If I am right, then the theories I present in this paper are as incomplete as Kaplan's, for I try to account only for the demonstrative uses of pronouns. I suspect that the format of the Three Meaning Theory would be useful for giving a "unified" account of pronouns, but I won't pursue this further here.

10. For instance, Richard (1983, 429) and Soames (1987, 99 & 101) say that linguistic meaning is character; but their treatments of demonstratives are very like Kaplan's explicit theory (Richard 1983, 429, n. 8; Soames 1987, 117 & n. 27). Richard (1990) and Salmon (1989) do not consider multiple occurrences of demonstratives, but their semantic frameworks would have problems similar to Kaplan's. Barwise and Perry (1983) present a more complicated case. On pp. 122-3 they show that their theory can accommodate something like context-shifting, which would enable them to avoid the problems of Kaplan's theory. (See section 4 below.) But later they use subscripts on their formal representations of pronouns to allow different occurrences of pronouns to have different contents in the same context. They say, "These subscripts do not mean that we have different pronouns, 'her_0' and 'her_1', or that 'her' has two meanings" (p. 133).

Yet as far as I can see, they do not attempt to characterize the meaning that all utterances of 'her' share. Their formal semantics uses subscripted variables as representatives of pronouns (p. 302); I believe it has problems with 'She is bigger than her' that are similar to Kaplan's problems with (1).

11. Kaplan (1989b, 574-5) discusses a similar view. Thanks to Joseph Almog for forcefully presenting this response to me.

12. Many of the following points would be even more obvious if we were focussing on demonstratives other than 'that', for instance, 'you', 'he', and 'she'. These certainly have some sort of conventional meaning apart from particular uses.

13. There is, of course, one major difference between the rules for 'I' and 'that': the rules for the latter require that the word be accompanied by a demonstration. Nevertheless, the rules governing the conditions under which 'that' refers are conventional; this is the point that is relevant to showing that 'that' has a linguistic meaning.

14. An expression theory could (as a last resort) include utterances as features of context. But this would effectively blur the distinction between utterance theories and expression theories.

15. I am speaking of metaphysical possibility here: it is not (I claim) metaphysically possible for me to utter the above sentence within one minute. An utterance theorist might maintain that

it is logically possible, and so might assign contents to "logically possible utterances" with me as speaker. However, utterances that are merely "logically possible" seem (to me) to be practically indistinguishable from expressions-in-contexts. So a theory that resorts to "logically possible utterances" seems (to me) not to take seriously the lead idea of utterance theories: that semantic theories should attribute contents to utterances rather than expressions-in-contexts.

16. We should keep in mind that the relations between the meanings of expressions and utterances will become more complex as we move away from Kaplan's theory. For further comparisons of expression theories and utterance theories (particularly with respect to the development of a logic of context-sensitive expressions) see: Kaplan 1989a, 522 & 546; Kaplan 1989b, 584, 585 n. 40, 586 n. 43 & 613; Richard 1993; and Crimmins 1995.

17. My formulation of the Context Shifting Theory is heavily indebted to Schubert and Pelletier (1989). Schubert and Pelletier are concerned with the semantics of bare plurals and generics, rather than demonstratives. Furthermore, their semantic framework is "one-level" and uses unstructured contents (sets of possible worlds). They also do not allow midsentence context shifts. But I have still found their paper instructive in formulating the semantic theories that appear in this paper. I wish to stress, however, that there are undoubtedly other ways to develop the basic idea of the Context Shifting Theory.

18. Of course, even in Kaplan's theory true demonstratives differ from pure indexicals in that the former are sensitive to different features of context than the latter. But distinct pure

indexicals (like 'I' and 'today') also differ from each other in this trivial way.

19. I am indebted in this section to Kaplan's remarks on reference failure for demonstratives. See Kaplan 1989a, 490-1; 1989b, 585-6.

20. Kaplan's theory and the Context Shifting Theory can mark some sort of difference between the two sorts of failure. Kaplan suggests (1989b, 585-6) that some positions in some demonstrata sequences be marked as "inappropriate" (for the first sort of case) and some as "null" (for the second). But this distinction seems ad hoc; and it still fails to capture the apparent difference in meaningfulness (that is, character) between the two cases.

21. This example is adapted from one given by Perry (1977).

22. Strictly speaking, I have not yet shown that the theory can assign different characters to different occurrences of 'that' in a single sentence. I show this in section 7.

23. I discuss cases like this in Braun 1991 and 1993. See also Taschek 1987.

24. Although Kaplan's theory allows for formal sentences like (4), Kaplan himself thinks that this may be an undesirable feature of his theory. Kaplan thinks that (4) is an appropriate representation of an utterance only if a single demonstration (directing intention) is driving both occurrences of 'that' in the utterance. But he thinks that this is not possible, unless the second

occurrence is anaphoric on the first. (See Kaplan 1989b, 588-590.) I believe it is possible in cases like Fred's for there to be a single demonstration driving two utterances of 'that'; but I doubt that in such cases the second occurrence is syntactically bound by the first. So I am inclined to deny that the second occurrence is anaphoric on the first in Fred's case.

25. I am using the phrase 'use of an expression' to refer to the "combination" of an expression with a demonstration. It is these combinations to which the Three Meaning Theory assigns characters. (See also note 6.)

26. I am tentatively assuming here that the "something extra" that determines the reference of a demonstrative is not a set of contextual cues of the sort that Wettstein (1984) argues it is.

27. Of course, a demonstration may appear in a context (as a demonstratum, for instance) in those rare cases in which a demonstration is the content of a context-sensitive expression.

28. I would like to thank Richard Feldman, David Kaplan, Ted Sider, and especially Joseph Almog for many helpful comments, criticisms, and discussions. Thanks also to the members of my seminar on indexicals in the fall of 1994, particularly Chris Barker and Peter Lasersohn, for their discussions of this topic and many related topics. I presented an ancestor of this paper in a talk at the University of Rochester in December 1994. I wish to thank the participants in the discussion that followed for their questions and comments.

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