1

Demonstratives as Definites

1.1 Introduction

[1]

It has always seemed to me that definite NPs in English — pronouns, definite descriptions, and demonstratives — are simple things, and that there's something amiss in those accounts which would treat them as ambiguous or, as in the E-type approach to pronouns, as only apparently simple disguises for more complex logical forms.

In a recent paper (Roberts, to appear), I argue that English definite descriptions and pronouns are uniformly interpreted as carrying presuppositions of existence and uniqueness. The existence presupposition is anaphoric; definites presuppose the existence of an antecedent in discourse, a familiar entity that is, moreover, unique among familiar discourse referents in satisfying the NP's descriptive content (as given by its head noun and modifiers, if any). But this antecedent is neither a preceding NP, nor an individual in (a model for) the world. Instead, and crucially, it is a discourse referent.

A **discourse referent** is an abstract entity in the common ground of the interlocutors in a discourse, where the common ground (following Stalnaker (1979), Heim (1982)) is the information which the interlocutors (presume to) have in common in the discourse. Just as the propositions in the common ground may or may not be true, the discourse

entities, those entities which may be alluded to in the discourse, may or may not actually exist. It is in this sense that they are not referents in the standard semantic sense of this term. Karttunen (1976) introduced the notion, arguing that it was needed, *inter alia*, to provide "referents" for NPs in cases where the existence of the entities in question is only hypothetically entertained, as in (1). Heim (1982) proposed that discourse referents could serve as the "referents" to which the pronouns "refer" in quantificational or conditional contexts like (2):

(1) Bill says he saw a lion on the street. He claims that <u>the lion</u> had escaped from the zoo.

(2) a) Every farmer who owns a donkey beats <u>it</u>.
    b) If a farmer owns a donkey, he beats <u>it</u>.

In (1) since the speaker isn't committed to the existence of Bill's lion and can even sensibly follow up with a denial of its existence, we cannot talk about the referent of *the lion* in the standard sense. In (2a) and (2b), even if we assume that there are farmers who own donkeys, still there are (presumably) many, and not a single referent for *it*, even for a given farmer. Example (3) is closely related to cases like (2b):

(3) In the past, if a married woman wanted to take out a loan, she had to ask <u>her husband</u> for permission.

We pick out an arbitrary married woman and say something about her obligations to her husband; so again, there can be no question of a referent for *her husband*. Moreover, in (3) there is no NP antecedent for *her husband*. The existence of the arbitrary woman's husband is entailed (under the current laws of the United States) by the fact that she is married, and it is this entailment which licenses the use of the definite description. [2] We can capture the obvious similarities between (3) and (2b) in a unified analysis, by taking the entailment of existence of a husband in (3) to trigger existence of a corresponding discourse referent in the interlocutors' common ground. We take discourse referents, then, as the abstract antecedents of NPs. Following Heim (1982), we realize this informational notion of discourse referent as a constraint on contexts of interpretation, technically a uniformity across the assignment functions available for interpretation at a given point in discourse. For example, suppose that in (1) *Bill* is associated with the index 7. Thereafter (if not before), the set of assignment functions which may be used to interpret utterances in the discourse in question will include only those which assign the intended individual named Bill to the seventh variable. This is

---

[2] Whether this license is direct or indirect is a matter of controversy, which I will touch on later in this paper.

a way of encoding the fact that the interlocutors have information about the existence of an individual with the relevant properties. [3]

Since the uniqueness presupposition associated with definite descriptions and pronominals in Roberts (to appear) is informational, requiring uniqueness of a corresponding discourse referent relative to information in the common ground, unlike Russell's uniqueness entailments for definite descriptions, on this account it is not surprising that the semantic uniqueness effects predicted by Russell for definite descriptions are only found in certain types of contexts. Pronouns differ from definite descriptions in carrying presuppositions of maximal salience of their familiar discourse referent in the context of interpretation. But otherwise the meaning of definites is simple and uniform. What is complex in their interpretation isn't the logical forms of these NPs themselves, or even their anaphoric presuppositions; it is the multi-faceted pragmatic process of anaphora resolution. Understanding this process casts light on the notion of a *context of interpretation*, and on how we collectively negotiate what that context is at any point in a given discourse.

Here I will propose an extension of this analysis to cover the interpretations of demonstrative NPs with *this* and *that*. I will argue for treating these NPs as a species of definite NP, and hence as uniformly anaphoric in the sense just defined. Like definite descriptions and pronouns, demonstrative NPs occur bound by quantificational antecedents and in examples of what I call discourse deixis, as well as in standard deictic use. However, just as pronouns differ from definite descriptions in carrying presuppositions of salience, demonstrative NPs differ from pronouns and definite descriptions in presupposing an accompanying demonstration. This is a presuppositional recasting of David Kaplan's thesis that a demonstration is part of the demonstrative's semantic content. But the theory does not follow Kaplan in assuming that demonstrative NPs themselves are directly referential. Rather, it is the presupposed demonstrations themselves which are direct in the way that they pick out some entity. Hence, direct reference in demonstrative NPs is actually indirect, via their accompanying demonstrations.

In Section 1 I will lay out some facts about the use and distribution of demonstrative NPs in English. In Section 2 I summarize Kaplan's theory of demonstratives in canonical uses and sketch some problems for extending that theory to a general account of English demonstratives. In Section 3 I lay out the general theory of definite NPs which underlies the treatment of demonstratives I then propose in Section 4. Section 5

---

[3]This notion bears a close resemblance to the technical notion of a parameter in the Situation Semantics of Barwise and Perry (1983), though those authors (p.c., 1987) may have had something slightly different in mind.

offers some brief conclusions.

1.2 English demonstrative NPs: some facts

The focus of this essay is the semantics and pragmatics of English demonstrative noun phrases (NPs), especially those dedicated demonstratives with *this* and *that*, or their plural forms *these* and *those*. The dedicated demonstratives may be used alone, pronominally; or as determiners, accompanied by a Common Noun (CN) Phrase. We see canonical uses of these NP types exemplified in (4)–(7): [4]

(4) [holding up an Adena Indian artifact from 200BC:] This is beautiful craftsmanship.

(5) [pointing at some stuffed peppers in a restaurant display case:] Those look particularly delicious.

(6) [salesman on a car lot, nodding in the direction of a nearby cluster of trucks:] These vehicles have four-wheel drive.

(7) [policeman, pointing in the direction of a man running through a crowd:] Stop that man!

In each of these uses, the speaker plainly indicates the intended referent (in the standard semantic sense), either by actually pointing or by a similar gesture which helps to pick out the referent in the space surrounding the speaker. When a demonstrated entity is human, or sufficiently human-like that use of an accompanying grammatically neuter pronominal form would seem odd, pronominal *this* and *that* are replaced by *s/he*, pronominal *these* and *those* by *they*. I will assume here that such uses of third person personal pronouns are demonstratives, as well.

Demonstratives can also be used to make reference to constituents of the text (uttered or written) of a discourse itself, as illustrated by (8):

(8) This sentence is short.

One might utter such examples accompanied by a demonstration, not unlike the one involved in (4). But there are other uses of demonstrative NPs which could not be plausibly said to involve an accompanying gestural demonstration of the intended referent. Many of these have an NP antecedent, as in (9):

---

[4] Maclaran (1982:15-23) also offers an analysis of examples of demonstrative degree modifiers as in her (i) and (ii):

(i) I need about this much.

(ii) Does it bother you to be that tall?

Like her, I will assume that the semantics of these is basically the same as that of the determiners, although I won't have any more to say about them here.

(9) I saw one quilt which was quite abstract, with lots of asymmetric diagonals. <u>Another one</u> was more traditional, worked in an old Amish pattern. <u>This quilt</u> was less busy than the other, but just as bold.

In some of these cases, the antecedent is a quantified NP but the demonstrative is not within its scope. Examples of this sort are parallel to the so-called E-type uses of personal pronouns:

(10) The Russians had allowed <u>few pieces from their collection</u> to go on show in the West, but <u>these</u> were the highpoint of the exhibition. (Maclaran 1982)]

And some demonstratives have a bound variable interpretation. The is illustrated by both (11) and (12), the latter an example of telescoping (Roberts 1989):

(11) <u>Every dog in my neighborhood</u>, even the meanest, has an owner who thinks that <u>that dog</u> is a sweetie.

(12) On every team there is <u>one player who is not as strong as the rest</u>. <u>That weakest member</u> is the one to play hardest against. (Maclaran 1982)

Demonstratives may also take narrow scope with respect to modals or other operators, as in the modal subordination interpretation of the second sentence in (13) or the donkey- type anaphora in (14):

(13) Michelin is hoping to find <u>ten more tyre inspectors. These new employees</u> would be required to work the night shift for the first three weeks. (after Maclaran 1982)

      modal subordination interpretation: 'if more tyre inspectors were hired, they would be required to work the night shift. . .'

(14) When a professional athlete sprains an ankle, <u>that injury</u> usually gets special treatment.

In (13), following the analysis of modal subordination in Roberts (1989,1996), the buletic proposition that Michelin finds ten more tyre inspectors serves to restrict the domain of the modal *would*, yielding the implicitly conditional interpretation suggested. In (14), *that injury* is understood to be under the scope of the adverb of quantification *usually*. The understood antecedent is only an existential entailment of the antecedent clause, the injury that results from spraining an ankle.

Thus, in several respects considered so far, demonstrative NPs display a range of behavior which is typical of definite descriptions and

pronouns, as well— they may be interpreted as anaphoric to an NP or as a bound variable, as E-type, or under the scope of a modal or other operator. But demonstrative NPs are known to contrast with definite descriptions in important respects. One is in the relationship between the NP and an accompanying demonstration; such accompaniment is quite common with demonstrative NPs, as their name would suggest, as in (4)–(7) above. But this is not the case with definite descriptions, a contrast illustrated by the following pair due to Sally McConnell-Ginet (p.c.):

(15) You [nodding to Mary] sit in that chairk [pointing to chair a], and you [nodding to Jonathon] sit in that chairl [pointing to chair b].

(16) You [nodding to Mary] sit in the chairk [pointing to chair a], and you [nodding to Jonathon] sit in the chairl [pointing to chair b].

(15) is acceptable and unremarkable, but (16) is clearly infelicitous. While being accompanied by distinct demonstrations may sufficiently enrich the descriptive content of two type-identical demonstratives so that they may be taken to denote different entities, it is not sufficient to distinguish the intended referents of two type-identical non-demonstrative definite descriptions.

Another respect in which demonstratives, at least when accompanied by a deictic gesture, differ from definite descriptions is in their potential scope behavior, as illustrated by the following minimal triplet:

(17) Context (CG): Charles is from Charleston, West Virginia. Paul is from St. Paul, Minnesota. δ is a pointing by the speaker in the direction of Paul, who is seated on a chair in front of the speaker:

Look over here [δ, the gesture held throughout the next sentence]. If Charles and Paul had changed chairs, then

a) the man being pointed at would be from Charleston

b) he[δ] would be from Charleston.

c) this man being pointed at [δ] would be from Charleston.

Many speakers judge (17a) to be felicitous and true. [5] We can take the definite description to mean something like 'the man I would be pointing at in that (counterfactual) situation', who would be Charles. But this reading isn't possible for (b) or (c), which mean that Paul would be from Charleston. Discussing an example very similar to (17b), Kaplan (1977) notes that intuitively this is patently false in the context suggested — whether or not Charles and Paul change chairs should have nothing to do with Paul's being from Charleston.

I take it that all of the above facts need to be accounted for by an empirically adequate theory of the semantics of English demonstratives. Of course, we needn't assume that demonstratives are unambiguous. However, there are both empirical and theoretical reasons to attempt an analysis of each demonstrative form as univocal, with a shared core of meaning between the various forms. Empirically, the diachronic evidence strongly argues that the contemporary demonstratives evolved from a deictic usage, and, moreover, that the contemporary definite article *the* and the personal pronouns evolved from the ancestor of the non-proximal demonstrative *that* (per Lyons (1977), the unmarked member of the +/- proximal pair). Theoretically, we would prefer an account that, drawing upon the common etymological origins of demonstratives and definite descriptions, can account for both their similarities and their differences in a maximally simple and insightful way. Surely it is not an accident that the demonstratives in (4)–(8) and (17c), and those in the remaining examples have the same forms. For example, the specification for +/- proximality is critical in examples like (9), which are unacceptable with proximal *this* replaced by the definite article:

(9′) I saw one quilt which was quite abstract, with lots of asymmetric diagonals. Another one was more traditional, worked in an old

---

[5] There is another way of minimally contrasting the role of a definite description in this context with that of a demonstrative description. Assume the same context as in (17):

(i) If Charles and Paul had changed chairs, then

    a) the man who I'd be pointing at [δ] would be from Charleston.

    b) this man who I'd be pointing at [δ] would be from Charleston.

Even speakers who are uncomfortable with the felicity or truth of (17a) tend to accept (ia) as felicitous and true. But the consensus is that (ib) is quite odd unless we take the relative clause to be non-restrictive, and then the utterance is false in the context suggested. Space does not permit extended discussion of the reasons why the relative clause must be interpreted as non-restrictive. Suffice it to say that it seems that the restrictive descriptive content of a demonstrative must subserve the identification of the intended demonstratum, and that counterfactual assumptions do not generally subserve that identification.

Amish pattern. #The quilt was less busy than the other, but just as bold.

This same distinction is important in helping to pick out the demonstratum in the canonical demonstrative uses; cf. (4)–(8), where replacing the proximal by non-proximal forms, or *vice versa*, would result in very different meanings. And conceptually, proximity and the direction involved in demonstration are two facets of the same process, that of picking out the intended referent in the situation of utterance. [6] Hence, we might expect that the proximity feature of the meanings of all demonstratives points at a common origin in deixis, whether the demonstrative is being used with a canonical demonstration or not.

1.3 Kaplan's theory of demonstratives

Responding to examples like (17b) above, Kaplan (1977) developed a theory of English demonstrative NPs in their canonical usage, i.e. accompanied by a demonstration. He assumes that a demonstration like δ has a "standard form" which is basically like that of the descriptive content of a definite description like that in (17a). The general form he suggests is given in (18), instantiated for (17b) in (19):

(18) "the individual that has appearance A from here now"

(19) "the individual who I appear to be pointing at from my perspective now"

If we take (19) to be part of the descriptive content of a demonstrative use of *he*, adding also the information suggested by the pronoun's gender, then we get a complete descriptive content for (17b), in (20), which is very close to that of the demonstrative description in (17c):

(20) "the male individual who I appear to be pointing at from my perspective now"

Moreover, this appears to be very close to the pragmatically enriched (liberalized) descriptive content of (17a). The question then is how to differentiate these examples. Kaplan's theory is summarized in (21); (21b) should be understood to hold in a theory of propositions as structured entities, so that the meaning of an NP used in an utterance remains itself a component of the proposition expressed:

---

[6]So far as I know, most (?all) languages make use of the distinction between proximal and non-proximal in reference, and in some, the distinction is refined even further. For example, in Japanese this is a three-way distinction, as we see in *kono*, 'this', *sono* 'that', and *ano* 'that over there'.

(21) **Kaplan's theory of English demonstrative NPs**:

    (a) Demonstratives are incomplete expressions which must be completed by a demonstration...Thus each demonstrative, d, will be accompanied by a demonstration, δ, thus: d$[\delta]$ (Kaplan 1977, Section XV)

    (b) Demonstratives are directly referential. "I intend to use '*directly referential*' for an expression whose referent, once determined, is taken as fixed for all possible circumstances, i.e., is taken as *being* the propositional component." For such expressions, "The rules do not provide a complex which together with a circumstance of evaluation yields an object. They just provide an object." "the semantical rules...provid[e] a way of determining the *actual* referent and no way of determining any other propositional component." (Kaplan 1977, Section VI)

Demonstrative NPs are contrasted with definite descriptions, since the latter *do* "provide a complex which together with a circumstance of evaluation yields an object", via the descriptive content embodied in their Common Noun Phrase (CN), i.e. the head noun and any complements or modifiers thereof. Another way of capturing the distinction might be to say that definite descriptions have a Fregean sense, so that their reference on a given occasion depends upon the circumstance of evaluation. But demonstrative NPs do not: Their reference depends not on the circumstance of evaluation, but solely upon the situation of utterance. To underline this difference, Kaplan suggests that interpretation takes place in two stages:

(22) Kaplan's two stage interpretation:

    • Character: a function from contexts (of utterance) to contents

    • Content: a function from worlds/circumstances of evaluation to denotations; e.g., individual concepts, propositions, etc.

Using this two-stage approach to interpretation, we can differentiate two kinds of rigid designators. Proper names have the same content in any given context, hence have "rigid characters". On the other hand, demonstratives and other indexical expressions don't generally have the same content in different contexts; but in a given context, the content is always rigid.

Given this general theory, Kaplan can account for the examples in (17) as follows: The demonstrative NPs in (17b) and (17c) are directly referential, and hence will be rigid designators in any given context, their referent being directly given as the demonstratum of δ. The de-

scriptive content of δ (plus that of the NP, if any) will be interpreted solely with reference to the situation of utterance, i.e. in the first phase of interpretation, and hence pick out Paul in both cases, so that the consequent would correctly be interpreted as denoting the false proposition that Paul would be from Charleston. But a definite description like that in (17a) isn't directly referential. This is reflected in the fact that the accompanying demonstration δ does not play a role in the interpretation of the definite description, and so its referent isn't "fixed" on Paul, the actual demonstratum, but can vary with the circumstance of evaluation, in accord with the descriptive content as interpreted in that circumstance (in the second phase of interpretation). This explains the apparent anomaly (or falsity) of (17b/c) and the sense that (17a) can be true, while still getting at the similarity in content of the three NPs. They effectively have the same descriptive content but different modes of reference.

There are several problems with embedding Kaplan's account within a more general account of demonstratives, which I'll briefly sketch here. The first, theoretical problem is that given (21a), Kaplan's theory is only applicable to demonstrative NPs in their canonical usage, accompanied by a demonstration of some sort. Even permitting a fairly wide range of speaker's behaviors to count as demonstrations, this rules out several of the common uses of demonstratives, i.e., the anaphoric-to-NP, narrow scope, and bound variable uses in Section 1 above. Presumably, non-demonstrative uses of NPs with the form of demonstratives are not directly referential, as this would be incompatible with bound variable or narrow scope interpretations. This ambiguity leaves unexplained common factors in the intuitive meanings across the full range of uses, such as the proximal/non-proximal distinction seen in *this/that*. And it leaves unexplained the obvious etymological relations between the forms used in demonstrative and non-demonstrative uses, on the one hand, and between demonstrative NPs and definite descriptions, on the other. Perhaps one could come up with a story that would explain the switch from direct reference in the presumably primitive deictic ancestors of the contemporary demonstratives to 'indirect' reference in their non-demonstrative uses and in their cousins the definite descriptions. I can imagine various forms such a story might take, but since all of them are more complex and less satisfying than the story I will propose below, I won't speculate further here.

Another, empirical problem for the generalization of Kaplan's theory is pointed out in unpublished work by Irene Heim (1985). Consider her example (23):

(23) Context: The speaker sees two images of chairs in the room where she sits, one to her left, the other image to her right. The image to the right is either a reflection in a mirror or else behind a piece of clear glass. δ_1 is a pointing by the speaker to the image to her left, δ_2 is a pointing to the image to her right:

That[δ_1] is that[δ_2].

Now consider two different possible contexts of utterance for (23), c and c'. c is the mirror world, so that δ_1 and δ_2 are in fact gestures which pick out the same chair. On Kaplan's theory, (23) expresses the necessarily true proposition in c. c' is the glass world, where the speaker is pointing at different chairs, so that, again on Kaplan's theory, (23) expresses the necessarily false proposition. But our intuitions tell us that in neither case does utterance of (23) seem trivial. Kaplan (1977, 1978) explains this apparent non-triviality for related examples as follows: The audience for (23) trusts that the speaker is saying something true. However, they don't know which context they're in, c or c'. From the character of (23), they know that it expresses either a necessarily true or a necessarily false proposition. Hence, they conclude that they're in a context like c, not c', hence acquiring new information, even though the proposition expressed was not contingent.

However, Heim points out that although this might seem a plausible explanation for the informativeness of (23), this type of explanation doesn't seem to be extendable to examples like her (24) and (25):

(24) That[δ_1] might well be that[δ_2].

(25) If that[δ_1] were that[δ_2], there would be only one chair in the house.

Kaplan argues that the content of a sentence in any given context is a function of the contents of its parts in that same context ("There are no monsters."). Therefore, since (23) is a part of both (24) and (25), the propositions they express should be calculable on the basis of the proposition expressed by (23). But this is not the case. E.g., consider (24). Suppose its LF is (23), and that it is uttered in context c. Since $|(23)|^c$, the proposition expressed by (23) in context c, is the necessarily true proposition, $|(24)|^c$ should be the same. And the same agreement would hold for c', where both (23) and (24) would express the necessarily false proposition. But intuitively, (23) and (24) have different meanings. Similarly, given the counterfactual mood of the antecedent of (25), we might felicitously utter it in a situation known by the interlocutors to be like c'. Then the antecedent would be necessarily false, on Kaplan's theory. If we take the meaning of a counterfactual to be basically that of Lewis (1973), then the sphere of worlds in which the antecedent would

be true (which are closest in other respects to the actual world c') would be the empty set, and (25) would be trivially true, since the consequent would be trivially true in all those worlds in that sphere. But (25) seems to be contingent, instead, its truth dependent on other facts about the household in question.

Another empirical problem for Kaplan's approach arises in connection with a phenomenon I will call **discourse deixis**, illustrated in (29):

(29) Melanctha has a dog and a cat. The latter is her favorite, but the former is more loyal.

Discourse deixis is closely related to the textual deixis illustrated by (8) above, where *this sentence* was used to refer to the sentence in which the demonstrative itself occurred. In discourse deixis, the relative proximity in question is that of a constituent or constituents in the immediately preceding discourse — in the case of *former* or *latter*, a pair of maximally salient NPs. But reference is not to those NPs themselves, but to the entities which the NPs denote. [7] In (29), the referent of *the latter* is the referent of the second member of the ordered (by order of utterance) pair $<a\ dog, a\ cat>$, while the referent of *the former* is that of the first element of that pair. Relevant here is the fact that we can observe direct reference effects with discourse deixis, as in (27):

(27) Melanctha has a dog and a cat, both of whom are getting very old. The cat is her favorite, but the dog is more loyal.
If I hadn't uttered the last sentence, the latter would spit up hair-balls and the former would bark.

The last utterance here is quite odd, and surely false: *the latter* and *the former* can only be taken to refer to the dog and the cat, respectively, on account of their being the referents of the most salient pair of NPs, those in the second sentence, $<the\ cat,\ the\ dog>$. But the counterfactual antecedent asks us to imagine that we hadn't uttered that second sentence; and in addition, the properties predicated of the discourse deictic NPs are clearly more appropriate to the entities which the deictic NPs would have referred to if the second sentence hadn't been uttered. Just as in (17), where Paul's provenience surely wouldn't vary as a function of his changing places with someone in the situation of utterance, in (27) the dog couldn't reasonably be expected to start spitting up hair-

---

[7] Of course, indefinite NPs arguably do not denote, nor do definites. I use the term loosely here, and in what immediately follows, for simplicity of expression. One might say, more precisely, that in using *the former* and *the latter* the speaker intends to pick out the same pair of referents which she intended in uttering the antecedent NPs. See Grice (1957), Kripke (1977) on the notion of a Speaker's referent; more on this below.

balls because the speaker hadn't uttered the second sentence! What this example shows is that discourse deixis is potentially just as direct as canonical demonstrative use. However we account for direct reference effects in the latter had better extend to the former, as well.

But the reference in discourse deixis is not direct. Even if we grant that discourse deixis is based on the textual deixis displayed in (8) and that this use of a demonstrative involves a demonstration, in discourse deixis the demonstratum is distinct from the deictic NP's referent. One might still try to maintain the direct reference account by taking the deictic element in NPs like *the former* to be only part of the logical form of the noun*former*, which one might represent roughly as in (28):

(28) λx.speaker's_referent_for(x,dthat[the non-proximal member of the maximally salient pair of uttered NPs in prior discourse])

Kripke (1977) introduces the notion of a *speaker's referent* to explain the type of example noted by Donnellan (1966), who noted apparent exceptions to Russell's (1905) arguments that definite descriptions do not denote, i.e. that unlike proper names, they have no referents but are basically quantificational. The speaker's referent in a given use of a definite description is an entity (in the world) which the speaker has in mind in using the definite; we might say that this is an entity which the speaker takes to truthfully instantiate the existential quantification associated with the definite. Thus, the speaker's referent is an actual entity pragmatically related to the use of the definite description, but the latter itself still does not refer. Kaplan's *dthat* (Kaplan 1978) directly refers to the unique entity which satisfies the description in brackets following it. Taking the property denoted by (28) to be the argument of the definite article, the resulting definite description will pick out the speaker's intended referent (in the context of utterance) in uttering the first NP of the pair. Thus, the definite description *the former* is interpreted *as if* directly referential, although it itself is not. What's directly referred to is the NP *the cat* itself, although *the former* is understood to be anaphoric to that NP in the usual sense. Note that on the assumption that Russell was basically correct that definite descriptions do not refer, [8] it cannot be that the structured proposition expressed by the consequent of the conditional in (27) is singular by virtue of containing the semantic referent of *the cat*. We might try to indirectly retrieve an actual cat, the speaker's intended referent which justifies the claim that Melanctha

---

[8] This assumption is not contradicted by contemporary theories like those of Kamp (1981) or Heim (1982), and subsequent work in dynamic interpretation wherein definites are treated as variables. For variables are certainly no more referential in themselves than the Russellian definite description.

has a cat. But the relationship of that animal to the NP *the cat* would be pragmatic, not be that of direct reference. Suppose we said that the proposition expressed by (27) includes, instead of the intended cat, the actual NP used to refer to that cat. The problem then is that it isn't the English NP itself which has as speaker's referent the cat. Rather, it is the use of the NP in the particular discourse in question which has that intended speaker's referent. Can we construct a singular proposition which contains a use of an NP? I imagine one could try to entify a use in such a way as to define such a singular proposition, though it strikes me as stretching the original conception of singularity to do so. But even if we could, examples like the following demonstrate that this would not be adequate:

(29) Everyone in my neighborhood who owns both a dog and a cat tells me that the latter intimidates the former, not the other way around.

(29) presents a problem for the use of the logical form in (28) for *former*, because there is no way to pick out a speaker's referent for *a cat*, which is under the scope of the universal quantifier. I.e., such a generalization does not pertain to any particular cat which the speaker might have in mind. So, (27) and (29) argue that we need to extend the account of the direct reference effect in (17) to cover non-canonical uses of demonstratives, and that we cannot use the notion of a speaker's referent to do so. We seem to need something more abstract for such cases, something like Karttunen's (1976) notion of a discourse referent (more below).

In what follows, I will argue that English demonstrative NPs are a type of definite NP, a class which also includes definite descriptions and personal pronouns. The view I propose will lead me to defend a variation of Kaplan's (21a) against apparent counterexamples, while arguing that (21b) is incorrect. In particular, I will argue that demonstratives do presuppose an accompanying demonstration, though we must take the notion of demonstration to be rather broader than is sometimes assumed. But there is good evidence that demonstratives are no more directly referential than definite descriptions, and I will offer an alternative explanation for the facts which led Kaplan to claim that they are.

1.4 Background: Definite NPs in a Context Change Semantics

Before I can defend the thesis that demonstrative NPs are a species of definite NP, I need to explain what I take to characterize the class of

English definite NPs, a class which includes the personal pronouns as well as definite descriptions. Though my views about definites are themselves quite simple, a subtle but significant variation on the Russellian view, the facts which must be explained in order to support these views, and the theories which must be rebutted to defend them, are many and complex. Hence, I can only hint here at the full story. For a detailed exposition and arguments, please see Roberts (1999).

Over the past twenty years, there has been a good deal of work on the semantics of definite descriptions and pronouns. Very briefly touching on a few highlights: Evans (1977, 1980) proposed extending the Russellian analysis of the definite description (Russell 1905) to certain uses of personal pronouns, the so-called E-type pronouns. Heim (1982) argued that the Russellian treatment was empirically incorrect even for definite descriptions, as well as for pronouns, and proposed replacing Russell's uniqueness clause with a presupposition of familiarity, satisfied when interlocutors have in their common ground a discourse referent (in the sense discussed above) corresponding to the definite. Since discourse referents are numerals (the indices on variables), technically this amounted to a requirement that the referential index on the definite NP be the same as the discourse referent. Kadmon (1990) and others argued that although definites, both descriptions and pronominals, do have familiarity presuppositions, they also presuppose Russellian uniqueness in the world (or model), a claim with which Heim (1990) herself agreed. A number of others (see especially Löbner 1987, Neale 1990, 1990b) have weighed in on this matter, but there is evidence which appears to favor both analyses, so that it has been difficult to draw any firm conclusions.

Consider the following evidence for the two positions (from Roberts, to appear, unless otherwise noted). In (30), we see the use of the definite description in a title. According to the history of the institution concerned, this was intentionally made part of the title by its nineteenth century trustees to counter the impression that another institution with the word *Ohio* in it was an institution of the state, hence relying on an implication of uniqueness long before Russell noticed it. In (31), a student who turns the page in question can reasonably expect to find exactly one clown, not more than one, again reflecting the uniqueness effect. And (32) strikes native speakers as infelicitous while (33) is felicitous, presumably reflecting the fact that cars have more than one tire, whereas unicycles have exactly one wheel.

(30) The Ohio State University is in Columbus.

(31) Teacher, giving directions: On the next page, you will find a puzzle. Find the clown in the puzzle.

(32) Every car had a puncture in the tire.

(33) Every unicycle had a spoke missing from the wheel.

However, Heim (1982) pointed out a number of problematic types of examples for Russellian uniqueness. In (34), if the sage plant were unique in being purchased by a given individual, that would be contradicted by its being purchased along with either others. The example ought to sound contradictory, but it does not. Marilyn Walker (p.c.) has observed that the Russellian account would predict that (35) and (36) should be synonymous, whereas in fact they are not. This can be seen by the felicity of following (35) with (37), but the infelicity of following (36) with (37):

(34) Everyone who bought a sage plant or a rosemary planted <u>the sage plant</u> with extra bone-meal or the rosemary in a well-limed soil, (and if it was a sage plant, bought eight others along with it).

(35) Among the members of his class at Eton, John was the cricket player.

(36) Among the members of his class at Eton, John was the only cricket player.

(37) Several others played cricket for fun, but he was by far the best and most dedicated.

So, neither the Russellian account on which definite descriptions display semantic uniqueness nor the familiarity-based account is entirely satisfactory from an empirical point of view. The question is how to capture the clearly valid intuitions of both parties while escaping the problems just illustrated, as well as others.

The analysis in Roberts (to appear) presupposes a dynamic theory of interpretation, in which the conventional meaning of a natural language expression is the potential it has to update information that the interlocutors share, or behave as if they share. This is modeled as a function from contexts to contexts, the expression's Context Change Potential (Context Change Potential).

On this view, the context of an utterance is a body of information, that information which the interlocutors have in common, i.e. their common ground. Note that this is a significantly different conception of the notion of context than we find in some other work, including, as I understand it, Kaplan's. There, it seems that context is understood to be something like the actual, physical circumstances in which the utterance takes place. Those physical circumstances, with a speaker, other interlocutor(s), location and time of utterance, etc., are reflected in the present Context Change Semantics notion of context in the informa-

tion which the interlocutors share, but the informational conception of context goes well beyond these circumstances. It includes, as well, information about the way the world is, a set of propositions which may or may not be true. And, crucial for our present discussion, it includes information about the entities which the propositional information pertains to, the discourse referents. [9]

There are two facets of the Context Change Potential for any given expression: its **presupposed content** and its **proffered content**. The presupposed content specifies what a context must be like in order for the Context Change Potential to be defined for that context. The proffered content — what is asserted in an assertion, but also the non-presupposed meaning of an interrogative or imperative — reflects the information which utterance of that expression adds to a context in which it is felicitously uttered.

The general view of presupposition assumed is that of Stalnaker (1974, 1979) as realized and extended in Heim (1982, 1992). An utterance is felicitous in a given context if and only if all of the utterance's presuppositions are satisfied in that context. Presuppositions may be propositional; in that case, they are satisfied if and only if they are entailed by the interlocutor's common ground, the set of propositions which they (behave as if they) hold in common to be true. But the common ground is only one facet of the context in which a discourse occurs, and presuppositions may put constraints on other facets of the context besides the common ground. Heim (1982) defines the context of utterance as an ordered pair consisting of a **Domain** — the set of familiar discourse referents — and a **Satisfaction Set** which captures the information in the interlocutors' common ground about the corresponding discourse referents. Discourse referents may be introduced into the domain by utterance of an indefinite NP, as well as on the basis of common familiarity with the corresponding entity in the world, e.g. on the basis of acquaintance by perception.

(38) Heim's (1982) notion of Context
    Given:
    - a model $M = <W, A, \text{Int}>$, W a set of worlds, A a set of individuals, Int a function from basic expressions to functions from worlds to extensions

---

[9] Roberts (1996b) argues that the interlocutors' common ground also includes a great deal of information about the structure of the discourse itself: what it's about and how it's related to other goals and plans of the interlocutors. I will stick in the present paper to the simpler notion which ignores this type of information, but believe it is ultimately quite important for understanding the notion of relevance, and hence for determining what is being demonstrated on a given occasion.

- the set of natural numbers N, and
- G, a set of assignment functions from N into A,

C is a **Context** (relative to M) iff C $= <$ Sat, Dom $>$, where:

> Dom $\subseteq N$ is the **Domain** of C, the set of familiar Discourse Referents, and
> Sat $\subseteq$ WxG, the **Satisfaction Set** for C, $= \{< w, g >:$ for all $i \in$ Dom, g(i) is an individual which verifies in w all the information the interlocutors share about i$\}$.

If in $C = < Sat_C, Dom_C >$ the interlocutors know that i is a cat, then every $< w, g >$ in Sat$_C$ will be such that g(i) $\in$ Int(cat)(w), in the model in question. [10]

Note that in adopting Heim's general framework for interpretation, one need not, and I do not, follow her in assuming that definite and indefinite NPs are interpreted as variables which may be unselectively bound by operators in whose scope they fall. This assumption was central to Heim (1982); however, many authors have subsequently argued against this aspect of her theory, notably Heim herself in subsequent work (Heim 1990). Definite, as well as indefinite NPs can be treated, e.g., as (the dynamic counterparts of) generalized quantifiers with existential force (see Chierchia 1995).

Within this general framework, the theory of definite NPs which I develop in Roberts (to appear) is an informational counterpart of the classic Russellian logical form for definite descriptions. As in Russell's treatment, the interpretation of a definite NP contains both an existence clause and a uniqueness clause. However, these are both part of the presuppositional content of the definite, rather than its proffered content (contra Russell and more in line with Strawson's observations). [11] The existence and uniqueness presuppositions of a definite description are not claims about an individual in a model, but about a discourse referent

---

[10]See Heim (1982) Chapter three for rules which yield a recursive, extensional definition of satisfaction for formulae of increasing complexity; Chapter 2 for discussion of how this model may be made intensional. Heim (1982) talks about Files instead of Contexts, but Heim (1992) equates those notions.

[11]Briefly, the presuppositional character of the uniqueness associated with definites is supported by the following example, discussed by Kadmon (1987):

> (i) A strange man lives here. If he/the strange man who lives here sees a cat, he screams.

As she points out, if we assumed the Russellian interpretation of the definite description *the strange man who lives here*, or the related E-type interpretation of the pronoun *he*, this would yield truth conditions for the conditional which are too weak: 'If there is a unique strange man who lives here, he screams.' Instead, if there is uniqueness associated with these NPs at all, it must be presuppositional.

in the domain of discourse. Thus, the existence presupposition amounts to (a variation on) Heim's (1982) Familiarity Presupposition for definite NPs, and the uniqueness presupposition is about the status of the familiar discourse referent in the Domain of the Context of discourse. Use of a definite description does not entail that there is some entity in the model/world which uniquely bears the descriptive content of the NP, but only that there is a familiar discourse referent in the context which is the only element of the Domain that's entailed by the common ground to bear the NP's descriptive content.

(39) and (40) give the informational existence and uniqueness presuppositions of definite NPs, both informally and in terms of the framework given in (38). In (40), clause (i) is the informational counterpart to Russellian existence, while (ii) is the counterpart to uniqueness:

(39) **Informational Existence and Uniqueness of Definite NPs** (informal):
Given a context C, use of a definite description NP_i presupposes that there is a discourse referent i in the Domain of C which is the unique familiar discourse referent contextually entailed to satisfy the (possibly liberalized) descriptive content of NP_i.

(40) **Familiarity and Uniqueness Presuppositions of Definite NPs** (formal):
For context $C = < Sat_C, Dom_C >$, if a definite NP with (possibly liberalized) descriptive content $Desc$ is felicitous in C then

(i) $\exists i \in Dom_C[\forall < w, g > \in Sat_C[Desc(w)(g(i))]$ &
(ii) $\forall k \in Dom_C[\forall < w, g > \in Sat_C[Desc(w)(g(k))] \rightarrow k = i]]$,

where $Desc(w)(g(i))$ is true iff the individual assigned to i by g has the property denoted by $Desc$ in world w.

(40) gives a set of necessary conditions for utterance of a definite NP to be felicitous. We know that these conditions will not be sufficient in cases where the descriptive content of the NP carries other presuppositions; we have seen one such case above, where *former* and *latter* presuppose a pair of maximally salient NPs in prior discourse. We'll see in the following section that when a definite is also demonstrative, an additional presupposition is imposed.

The proffered content of definite descriptions can be taken to be nearly identical to that of a pronoun, e.g., in static terms, with a logical form something like $\lambda P[P\{x\}]$; or it may have redundant existential force, as in $\lambda P[\exists y(P(y)$ & $y = x)]$. The presupposition will guarantee that the free variable in this proffered content gets appropriately bound, given standard mechanisms of (selective) binding in such dynamic theo-

ries (e.g., see Chierchia 1995). The relationship between indefinites and definites is this: While an indefinite has existential force, proffering the existence of a discourse referent with a certain descriptive content (which is presupposed to be novel relative to the Context, as in Heim (1982)), a definite presupposes the existence of such an entity, and moreover that the descriptive content is not known to hold of any other familiar discourse referent. This does not preclude that in fact there is some other entity in the world (or model of interpretation) which has that property, but only that the existence of such an entity is not entailed by the interlocutors' common ground. Hence, the uniqueness associated with definites is **informational uniqueness**.

Although weaker than the Russellian semantics for definite descriptions, the present theory can still account for robust semantic uniqueness effects in examples like (30) and (31):

(30) The Ohio State University is in Columbus.

(31) Teacher, giving directions: On the next page, you will find a puzzle. Find the clown in the puzzle.

The definite description in (30) is a title, like *the King of France*. Titles are created with a view to their potential use in a variety of contexts. Their creators know that they may at some point be used in conversations in which the interlocutors are well-enough informed that they are in a position to be familiar with all the entities in the world which satisfy the title's descriptive content. In such a case, the common familiarity of the interlocutors will license discourse referents for all these entities, so that the definite description title will only be felicitous, by (40), if there is in fact only one entity in the world which it describes. Taking this into account, those who create a title make sure that it satisfies semantic, Russellian uniqueness, in order to guarantee its felicity. (31) involves directions intended for use in a future situation in which the hearer will presumably be in a position to have perceptual access to full information about the page in question, and in particular to know how many clowns there are in the puzzle which they've found on that page. At that point, the hearer and speaker will have in their common, perceptually gleaned information knowledge of the existence of those clowns, and hence in the context there will be a discourse referent for each of them. If there were more than one clown (or puzzle) on that page, the definite description would be infelicitous, its uniqueness presupposition unsatisfied in the intended situation of use. So, once again, the speaker takes this into account and guarantees felicity by only using the definite when the clown is (so far as she knows) unique on the page.

The last example illustrates another facet of (40): We automatically

take *the puzzle* and *the clown* to bear what Evans (1977, 1980) called a *liberalized* descriptive content. That is, we assume that the speaker intends to refer to the 'puzzle that's on the next page of the book you're holding' and 'the clown that's in the puzzle on the next page in the book. . .', and not to the sole thing in the whole world that's a puzzle or a clown. Such liberalization is an instance of domain restriction, a phenomenon whereby the quantificational domain of an operator (here, the existential) is pragmatically restricted with reference to what is relevant in the context. [12] But (40) does not predict that semantic uniqueness effects like those predicted by Russell, where we understand the speaker to convey the information that the intended referent is unique in the world under its description, will always be associated with the use of a definite description. This result is desirable, because although Russell's observations were correct about examples like (30), he didn't look at enough types of examples to see that semantic uniqueness effects in definite descriptions only arise in certain types of contexts. In (30) and (31), the contexts involve special epistemic assumptions. In other types of examples, there is a conversational implicature associated with the choice of a definite description when a pronoun would have sufficed (see Roberts (to appear) for more discussion). When these conditions do not obtain, as in (34), repeated here, no uniqueness effects arise:

(34) Everyone who bought a sage plant or a rosemary planted the sage plant with extra bone-meal or the rosemary in a well-limed soil, (and if it was a sage plant, bought eight others along with it).

The definite description *the sage plant* in the predicate satisfies informational familiarity and uniqueness; at the time of utterance, there is a corresponding discourse referent in the domain, introduced by the indefinite *a sage plant*, and it is the only discourse referent which satisfies the NP's liberalized descriptive content 'the sage plant that x bought', for some x instantiating the subject in any given world in the (satisfaction set of the) common ground. But this doesn't preclude there being other such sage plants in that world which were purchased by x, and in fact the conjoined VP pertains eight other sage plants x purchased, without any hint of infelicity or contradiction. Neither Russellian, semantic uniqueness for definite descriptions nor Löbner's (1987) and Heim's (1990) functional accounts of the semantics of definite descriptions can explain the felicity and non-contradictoriness of such examples, while

---

[12]Note that this is not the same notion as that of the Domain of the Context. Rather, it has to do with restricting the set of entities (or the proper sort) over which the operator ranges. See Roberts (1995, 1999), von Fintel (1994) for discussion of the pragmatics of domain restriction.

the present account can.

Although many of the authors who have recently worked on definites propose uniform conditions over definite descriptions and pronouns, semantic uniqueness effects almost never occur with pronouns. This is associated with a difference in the distribution of pronouns and definite descriptions. Consider the contrasts in the following:

(41) A woman entered from stage left.
Another woman entered from stage right.
#The woman/√The FIRST woman/√The SECOND woman was carrying a basket of flowers.

(42) A woman entered from stage left.
Another woman entered from stage right.
SHE was carrying a basket of flowers, while /#the woman/√the FIRST woman/#the SECOND woman led a goat.

In (41) and (42), the first two sentences set a scene in which there are apparently two women, distinguished only by which side of the stage they have entered from. We see in (41) that we cannot felicitously use the definite description *the woman*, apparently because it refers nonuniquely in the scene in question. The more specific NPs are felicitous; *first* and *second* may either be taken to allude to the order of a woman's entrance on the stage or the order of our mention of her and her entrance, with the same results. (42) shows that the pronoun *she*, while even less contentful than *the woman*, may be felicitously used, but it can apparently only refer to the second woman, as shown by the possible references to the other woman in the adjunct clause. Note that we cannot argue that the first woman is simply not salient by the time we interpret the pronoun; in the same relative linear position in discourse, *she* in (43) can take the first NP as its antecedent:

(43) A woman entered from stage left.
There was a basket of flowers in the middle of the stage.
She picked it up.

The difference in (42) seems to be that a pronoun takes as its antecedent the *most* salient entity in the context at the time of its utterance which is of a sort compatible with the pronoun's features. But a definite description doesn't take relative salience of potential antecedents into account.

It would take me too far afield in the present paper to attempt to spell out in any detail what it is for a discourse referent to be salient in a given context of utterance. See Roberts (1998, to appear) for discussion and relevant references on the subject. Here, I must simply assume that

in a given context C we can pick out a group of discourse referents as being salient at that point in the discourse. Let us call this set $Sal(C)$, the salient set in the context C, and assume that it is a subset of the set of familiar discourse referents in C, Dom(C). Further, I will assume that there is an order of relative salience on Sal(C), $\geq_{Salient}$, enabling us to capture which discourse referernts are most salient in C.

The sensitivity of pronominal interpretation to salience is captured in the presuppositions of pronouns spelled out in (44) and (45):

(44) **Presuppositions of Pronouns** (informal):
Given a context C, use of a pronoun Pro_i presupposes that there is a discourse referent i familiar and salient in C which is the most salient discourse referent satisfying the descriptive content suggested by the person, number and gender of Pro_i.

Informational uniqueness of the presupposed discourse referent antecedent for the pronoun is entailed in (44) by the superlative *most*. So if we take the person, number and gender of a pronoun, suitably liberalized, to constitute its descriptive content, then (44) amounts to (39) plus the presupposition of maximal salience of the antecedent discourse referent. The latter is encoded as a restriction on the comparison class for the determination of informational uniqueness (clause (ii)) to the set of discourse referents that are at least as salient as that corresponding to the antecedent:

(45) **Familiarity and Uniqueness Presuppositions of Pronouns** (formal):
For context $C = <\text{Sat}_C, \text{Dom}_C>$, with the salient discourse referents $\text{Sal}_C \subseteq \text{Dom}_C$, if a pronoun with descriptive content Desc (given by its person, number and gender) is felicitous in C then
(i) $\exists i \in \text{Sal}_C[\forall <w, g> \in \text{Sat}_C[\text{Desc}(w)(g(i))]$ &
(ii) $\forall k \geq_{Salient} i [\forall <w, g> \in \text{Sat}_C[\text{Desc}(w)(g(k))] \rightarrow k = i]]$,
where $Desc(w)(g(i))$ is true iff the individual assigned to i by g has the property denoted by *Desc* in w, and $\geq_{Salient}$ is a partial order over $\text{Sal}_C \times \text{Sal}_C$ s.t. $x \geq_{Salient} y$ iff x is at least as salient as y.

These presuppositions effectively restrict the search space for pronominal antecedents to the set of maximally salient entities at the time of utterance. Hence, the uniqueness presupposition, unlike that for definite descriptions, generally does not obtain over the entire domain of discourse referents, and semantic uniqueness effects do not arise.

Before moving on to argue that demonstrative NPs are definite, and hence subject to (40), we need to address briefly the issue of what it means for an NP to be familiar, i.e., what licenses the search for a

discourse referent antecedent for that NP. Consider the following taxonomy of ways we might understand familiarity, and hence of ways in which the introduction of a familiar discourse referent into the common ground may be licensed:

(46) **Taxonomy of familiarity**:

    (a) strong familiarity: the NP has as antecedent a discourse referent introduced via the utterance of a (usually) preceding NP [13]

    (b) weak familiarity:

        (i) the entity referred to is globally familiar in the general culture or at least among the participants in the discourse (e.g. through perceptual acquaintance), although not mentioned in the immediate discourse (see (47) below)

        (ii) introduction of the NP's discourse referent is licensed by contextual entailments alone (see (48) below)

        (iii) weak familiarity is guaranteed by giving a functional interpretation to the definite description (which function may have to be accommodated); see (49)–(51) and (52), (53) below)

When someone says that an NP is used anaphorically, they often seem to mean that the NP is strongly familiar, as defined in (17a). Heim (1982) makes it clear that the notion of familiarity she has in mind subsumes both strong familiarity and the first type of weak familiarity; this is the type of familiarity guaranteed by deictic gestures in discourse, which could be characterized as directly acquainting the interlocutors with the existence of the relevant entity, as well as making it maximally salient at that time. In Roberts (to appear), I argue that the familiarity presuppositions of definite NPs can be satisfied by the other types of weak familiarity, as well. This is intended to counter authors like Fraurud (1990), Birner and Ward (1994), and Poesio and Vieira (1998), who offer what they take to be counter-examples to the claim that definite descriptions have familiarity presuppositions. In most of those examples weak familiarity is satisfied, although strong familiarity fails. A few illustrations will have to suffice here:

(47) One stranger to another: The sun is especially hot today.

(48) I dropped ten marbles and found only nine of them. It/the missing marble

---

[13] I want to leave open the possibility of treating cataphora, generally involving a pronoun in a subordinate clause in the same sentence as the antecedent NP, as yielding strong familiarity. But I won't have anything to say about those cases here.

is probably under the sofa.

(49) John read a book about Schubert and wrote to <u>the author</u>. (Heim 1982)

(50) I walked into the room. <u>The windows</u> looked out to the bay. (Clark 1977)

(51) Context: One detective to another, after stumbling over a strangled body at a crime scene:
<u>The murderer</u> must be far away by now.

If (47) is an out-of-the-blue utterance between perfect strangers, presumably *the sun* will fail to be strongly familiar. However, in such cases there is no sense of accommodation or awkwardness. Rather, even strangers, if they take each other to be sane, normal adult humans, can assume that they share the same environment, on a planet which revolves around a single sun; hence they can assume that the information they share entails the existence of exactly one sun. Under weak familiarity, this existence entailment licenses a discourse referent corresponding to the (actual) sun, which satisfies the familiarity presupposition of the definite description. Uttered out of the blue, (48) is generally unacceptable with the underlined pronoun, as noted by Partee (cited in Heim 1982). But unnoted there is the fact that it is quite unremarkable with the full definite description. The first sentence only entails the existence of a missing marble without mentioning it, making the discourse referent for the marble (merely) weakly familiar but not salient. This satisfies the presuppositions of the definite description, but not of the pronoun. In (49) the existence of a book, in combination with our general knowledge about how books come into being, entails the existence of an author, who is thereby weakly familiar; we can take *author* to be interpreted as a function, with the discourse referent corresponding to *a book about Schubert* serving as implicit argument. Our understanding of (50) involves default knowledge about rooms, that they generally have windows in them. In (51), the detectives know a crime scene when they see one, and each knows that the other knows that a strangled body entails the existence of a murderer. Hence, many examples which were treated by Heim and subsequent authors as requiring accommodation do not on the present account, since they are licensed by a corresponding discourse referent which is (merely) weakly familiar. However, weak familiarity which is licensed solely by contextual entailment does not by itself suffice to make the corresponding discourse referent salient, so that in such cases a definite description is generally preferred over a pronoun. *He, they, he* would be unacceptable (on the intended interpretations) if

replacing the definite descriptions in (51).

However, accommodation is sometimes required to satisfy the presupposition of familiarity. In general, wherever there are presuppositions there is the possibility of accommodating them even though strictly speaking they fail in the context of utterance, so long as it is perfectly clear what is presupposed. [14] Taking weak familiarity to be the relevant notion for the definitions in (40) and (45) radically cuts down the number of cases which call for accommodation. However, we still see the need in examples like (52) and (53):

(52) (To a European friend who knows nothing about West Virginia:)
Last weekend we climbed the biggest mountain in West Virginia.

(53) (One stranger to another:)
Well, I have to go. The little woman is waiting for me.

In these examples, presumably the audience had no idea prior to the utterance that there existed thing as a mountain in West Virginia (52) or that the speaker was married (53). So weak familiarity fails. But since the mountain in question is described in superlative terms, then it will be semantically unique under that description. And we know that if a man is married in this culture, he can have only one wife. That is, these examples illustrate semantic uniqueness, or Löbner's (1987) semantically functional interpretations. So if we accommodate the existence of a mountain or a wife, then the informational uniqueness of the corresponding discourse referent is assured. Note that these examples argue against a theory of definite descriptions built solely on familiarity, since such a theory would not be able to account for the infelicity of an indefinite article in such examples:

(54) #Last weekend we climbed a biggest mountain in West Virginia.

One probable reason why weak familiarity has not heretofore been seriously taken into account is the difficulty of specifying just when a discourse referent which is merely weakly familiar is introduced into the common ground. If, e.g., a discourse referent i is licensed by an existence entailment alone, when is this licensure "calculated" and i introduced into the domain of the common ground, Dom(C)? I grant that this is a difficult problem from a computational point of view, a sub-case of the problem discussed at length by Sperber and Wilson (1986): When does a potential entailment get drawn in discourse — as soon as the discourse context is sufficient rich to entail it, or only if and when it be-

---

[14]That is to say, when we place contextual constraints on accommodation, the result is a much tighter theory, making clearer predictions about when accommodation is acceptable and when it is not. For general discussion, see Roberts (1995,1996).

comes evident that it is relevant? In all such cases, as they illustrate in great detail, the amount of inference required to keep up with the possible entailments would be computationally intractable. Walker (1993) suggests that often redundancy is acceptable in discourse precisely because it helps to remind the hearer of already familiar information (e.g., propositions in the common ground) just when that information permits one to draw inferences relevant for the current discussion. This, in turn, suggests that we don't just continually whirr through all the information in our common ground looking for inferences which can be drawn; it is likely that in general these are actually drawn only when their relevance is brought to our attention. In the case of weak familiarity, this would mean that in the record that a hearer attempts to keep of the common ground there might be no pre-existing discourse referent, one being inserted after the fact just when it becomes clear that it is both licensed by entailment and required to satisfy the familiarity presupposition of a definite. But as in presupposition satisfaction generally, we wouldn't want to say that this involved accommodation — a violation repaired after the fact; e.g., see Karttunen's (1973) discussion of presupposition satisfaction satisfied by entailed information, a very straightforward and common phenomenon.

Thus, the problem of when to introduce entailed information, including merely weak discourse referents, is a processing matter, a reflection of the limitations of the human beings who process language. Such cases do not involve accommodation in the sense of a repair, as introduced in Lewis (1979). We generally don't even notice the necessity of this licensure noticed-after-the-fact in cases like (48)–(51).

In summary, a range of examples, of which (34) illustrates only one type, argue that either Russellian proffered semantic uniqueness or its presuppositional counterpart place too strong a requirement on the semantics of definite descriptions, while pronouns generally fail semantic uniqueness. Yet familiarity alone does not suffice to explain the semantic uniqueness effects observed in (30), (31) and a range of other examples. If we adopt weak familiarity and assume that the uniqueness displayed in definites is informational uniqueness rather than semantic, the full range of examples can be explained, including the examples which cause problems for the theories of semantic uniqueness or familiarity alone. Far fewer types of examples now require accommodation, and given the presuppositional character of informational uniqueness, we would expect some such examples in any case.

1.5 Demonstratives without direct reference or ambiguity

In this section, I will present a theory which treats English demonstrative NPs as a type of definite NP, a subclass which cuts across the other two sub-classes, the definite descriptions and the pronouns. The theory I offer gives a unified account of all the types of demonstratives considered above: pronominal and descriptive, accompanied by canonical demonstrations or textual deixis, and, with only minor variation, discourse deixis, as well.

There is only one type of use of demonstrative NPs which the present theory cannot account for, so far as I can see. This is what Maclaran calls the 'specific indefinite' use of proximal demonstratives, illustrated by (55):

(55) [excited teenager on the phone to a friend:] I met this great looking guy on the bus this afternoon!

Such uses seem to fail familiarity altogether, so that they aren't plausibly definite; further, there is an apparent failure of proximity of the guy in question in the actual discourse context. [15] I speculate that the proximal might be used to indicate some sort of empathetic proximity, but otherwise have nothing of interest to say about these. [16] After offering in Section 4.1 a characterization of the presuppositions which differentiate the demonstratives from the other types of definite discussed, in Section 4.2 I'll briefly discuss what it means for a demonstrative NP to be accompanied by a demonstration. Then in Section 4.3 I'll return to the question of how to account for the direct reference effects observed by Kaplan.

1.5.1 The presuppositions of demonstrative NPs

I begin with the assumption that demonstrative NPs with *this, that, these,* and *those* are all definite, whether descriptions or pronouns. Thus, they all carry the presuppositions of familiarity and informational uniqueness noted in (40) for definite NPs in general. Following Kaplan, I assume that demonstratives, including demonstratively used personal pronouns, carry an additional assumption which neither definite descriptions, nor

---

[15] I also understand (Arantxa Martin-Lozano, p.c.) that though Spanish has demonstratives whose uses otherwise seem to closely parallel those of the English demonstratives as spelled out here, they are not used in the way illustrated by (55). This suggests that this use has developed as a special feature in some language(s), rather than as a direct reflection of the demonstrative's ordinary meaning.

[16] But see Dekker (1997) for some interesting speculation about specificity and definiteness, which may bear on such uses as well as on specific indefinites and the like.

pronouns in general, do: They presuppose an accompanying demonstration, whose demonstratum is correlated with the discourse referent that satisfies their familiarity. Further, I will assume that this presupposition of a demonstration is general for all the uses of demonstratives noted in Section 1, and not just for those canonical uses which involve a deictic gesture. And I will argue that given the presupposition of a demonstration, we can explain the direct reference effects associated with demonstratives without assuming that they have a special, direct mode of reference. Insofar as we say that any NP has a Context Change Potential, which is the counterpart in a dynamic, context change semantics of a Fregean sense, we can say that demonstratives, like other definites, have senses.

(56) **Presuppositions of Demonstrative NPs** (informal):
Given a context C, use of a (non-)proximal demonstrative NP_i presupposes (a) that there is an accompanying demonstration δ whose unique demonstratum, correlated with a weakly familiar discourse referent by virtue of being demonstrated, lies in the direction indicated by the speaker at a (non-)proximal distance to the speaker, and (b) that the weakly familiar discourse referent for the demonstratum is the unique familiar discourse referent contextually entailed to satisfy the (possibly liberalized) descriptive content of NP_i.

Comparing (56) to (39) from above, we see that the Presuppositions of Demonstrative NPs include those of definites more generally:

(39) **Informational Existence and Uniqueness of Definite NPs** (informal):
Given a context C, use of a definite description NP_i presupposes that there is a discourse referent i in the Domain of C which is the unique familiar discourse referent contextually entailed to satisfy the (possibly liberalized) descriptive content of NP_i.

Moreover, if we assume, as seems natural, that the accompanying demonstration serves to make the intended demonstratum, and hence its discourse referent, maximally salient, then the presuppositions for pronouns in (45) are satisfied, as well. Hence, all demonstratives satisfy the presuppositions for both demonstratives generally and for pronouns, while satisfying others in addition.

Maclaran (1982:159) argues that the proximity feature of a demonstrative is presupposed, not entailed, since this facet of a demonstrative's meaning can't be "sensibly denied", as argued by the infelicity of B's reply in her example (57):

(57) A: I've had three slices of this cake.
    B: No, you haven't. It's not near you.

In the formal version of (58), I adopt the dynamic counterpart of a dual indexing system (Kamp 1971), so that interlocutors can keep track both of the global common ground (CG) and the local context of evaluation at any given point in the discourse (the local context C). When the two differ, as under the scope of an operator or in the course of interpretation of a conditional, I will assume that interpretation of a demonstrative is anchored directly to the common ground. This and the directness of demonstrations themselves are the keys to explaining the so-called direct reference effects noted by Kaplan.

(58) **Presuppositions of Demonstrative NPs** (formal):
Given a context of evaluation C, with common ground CG s.t. $\text{Dom}_{CG} \subseteq \text{Dom}_C$, and discourse referent S s.t. $\forall i \in \text{Dom}_{CG} \ \forall < w, g > \in \text{Sat}_{CG}[\text{speaker}(w)(g(i)) \ \leftrightarrow \ i = S]$, if a [+(-)proximal] demonstrative NP$_i$ with (possibly liberalized) descriptive content Desc is felicitous in C, then

(i) $\exists \delta [\delta \in \text{Dom}_{CG} \ \& \ \forall < w, g > \in \text{Sat}_{CG}[\text{demonstration}(w)(g(\delta)) \ \&$
accompanies$(w)(g(\delta), \text{utterance}(\text{NP}_i))] \ \&$

(ii) $\exists j \in \text{Dom}_{CG}[\forall < w, g > \in \text{Sat}_{CG}[+(-)\text{proximal}(w)(g(j), g(S)) \ \&$
demonstratum$(w)(g(j), g(S), \delta)] \ \&$
$\forall k \in \text{Dom}_{CG}[\forall < w, g > \in \text{Sat}_{CG}[+(-)\text{proximal}(w)(g(k), g(S))$
& demonstratum$(w)(g(k), g(S), \delta)] \ \rightarrow \ k = j] \ \& \ \text{Desc}(w)(g(j))]$
&

(iii) $j = i]]$

where $Desc(w)(g(i))$ is true iff the individual assigned to i by g has the property denoted by $Desc$ in world w; and
$+(-)proximal(w)(g(j),g(S))$ & $demonstratum(w)(g(j),g(S),\delta)$ is true iff the individual assigned to j by g is in the set of entities (non-)proximal to the speaker $g(S)$ and is the demonstratum intended by $g(S)$ for the demonstration $g(\delta)$.

Again, comparing (58) with the formal statement of the presuppositions of definites in (40) above, we see that the former incorporates the presuppositions in the latter:

(40) **Familiarity and Uniqueness Presuppositions of Definite NPs** (formal):
For context $C = < \text{Sat}_C, \text{Dom}_C >$, if a definite NP with (possibly liberalized) descriptive content $Desc$ is felicitous in C then

(i) $\exists i \in \text{Dom}_C[\forall < w, g > \in \text{Sat}_C[\text{Desc}(w)(g(i))] \ \&$
(ii) $\forall k \in \text{Dom}_C[\forall < w, g > \in \text{Sat}_C[\text{Desc}(w)(g(k))] \ \rightarrow \ k = i]]$,

where $Desc(w)(g(i))$ is true iff the individual assigned to I by g has the property denoted by $Desc$ in world w.

Clause (58i) tells us that there's a demonstration that is familiar in the CG, that is, whose existence is common information for the interlocutors; the familiar discourse referent is δ, and hence the demonstration (in any give world) is $g(\delta)$. Clause (ii) says that there's a discourse referent familiar in the CG which is the unique demonstratum of this demonstration and which satisfies the NP's descriptive content, and clause (iii) that the discourse referent for this demonstratum, j, is the same as that for the demonstrative NP, i. Note that no matter the context in which the demonstrative occurs (e.g., under the scope of a modal, hence irrealis), the demonstratum is always determined with respect to the CG, i.e. the information about actual circumstances of utterance. Hence, following Kaplan, demonstrata cannot be shifted in modal contexts; there are no monsters.

The heart of this proposal is the claim that a demonstrative NP conventionally presupposes that the familiar discourse referent for the demonstratum of its associated demonstration is the same as the discourse referent which satisfies the NP's familiarity presupposition. in (58), this identity is guaranteed by clause (iii). I might instead have simply used i in place of j throughout, but I wanted to emphasize that the demonstration alone makes its demonstratum weakly familiar, and that what the NP's presupposed content does is equate that discourse referent with its own.

But what is a demonstration? How can this notion be made sufficiently broad to capture the sense in which not only canonical uses of demonstratives, but discourse deixis as well involves a demonstration?

1.5.2 Demonstrations

Demonstrations are communicative devices, used to bring an audience's attention to something. But they are not themselves linguistic. That is, though an expression in a given language may presuppose an accompanying demonstration, the demonstration itself is not a part of that language. Rather, it is part of the actual world as experienced by the interlocutors, its demonstratum singled out in that world. [17] Hence, demonstrations are insensitive to linguistic stipulation about their demonstrata. If we point at something, it doesn't matter if we say

---

[17] One reviewer wondered what type of ontology is presupposed by (58), where satisfaction sequences can map discourse referents onto demonstrata in the world. But I see nothing any more difficult in assuming that demonstrations are real entities in the world than in assuming such status for events, facts, behaviors, and other abstract entities generally conceded to be spoken of as if they exist.

we're pointing at something else; there are no linguistic "shifters" which can take scope over a demonstration. The demonstratum is the actual demonstratum in the space in which we point. In this sense, demonstrations themselves are direct.

The demonstrations presupposed by demonstratives are fundamentally locative, demonstrating their intended referent via indication of its location. While a deictic gesture is surely the prototypical demonstration, as in deixis more generally such spatially-realized gestures find analogies in non-spatial domains. When an entity obviously lies in the physical space surrounding the speaker, indication of its location is a conventional part of the meaning of a demonstrative used to refer to it. But conceptually the speaker lies at the zero-point of a system of coordinates, only one of which is spatial. Other dimensions include temporal proximity, proximity in the temporally aligned space of use or mention in the discourse, and even what Lyons calls *empathetic* proximity, pertaining to the speaker's identification with the entity referred to (Lyons 1977, Maclaran 1983). As is quite common in natural language, expressions which involve reference to the spatial dimension may be extended by analogy to other dimensions in this system of coordinates, always from the egocentric perspective of the speaker. There is a great deal of discussion of this type of extension in the linguistic literature, e.g. use of spatial prepositions for temporal and modal loci, similar extensions of verb senses (e.g., for *approach*), etc. See Anderson (1971), Fillmore (1975), Lyons (1977), Comrie (1981), and Jackendoff (1983), among others, for extensive discussion.

What I have called canonical uses of demonstratives, as in (4)–(7) above, are accompanied by demonstrations in actual space. Since this space is three dimensional, the demonstratum might lie in any of an infinite set of directions from the speaker. In the absence of any other indication of the direction in which the hearer is to search, a deictic gesture (pointing, glance, nod, etc.) by the speaker will provide the required orientation. Along the line suggested by the gesture, the hearer will search for the intended referent within a region which is (non-)proximal to the speaker, in accordance with the proximity presupposition of the demonstrative. But even in actual space, it is important to distinguish a demonstration from a deictic gesture. The former only requires giving adequate evidence to enable a hearer to infer the speaker's intended demonstratum. [18] A deictic gesture is neither necessary nor sufficient to guarantee that this requirement is satisfied. Successful demonstration

---

[18] This broader sense of *demonstration* is suggested by standard dictionary definitions like the following in the *American Heritage Dictionary*:

demonstrate:

isn't so much a question of following specific conventions as of adopting effective strategies for pragmatically picking out the intended referent in the relevant space (see Clark, Schreuder and Buttrick 1983). To see that a deictic gesture by itself is insufficient, consider again the following examples:

(5) [pointing at some stuffed peppers in a restaurant display case:] Those look particularly delicious.

(7) [policeman, pointing in the direction of a man running through a crowd:] Stop that man!

(5) might be uttered in a situation where the speaker is pointing in the direction not only of the intended referents, the peppers, but of some flies on the glass of the display case. What makes this a successful demonstration is a combination of the deictic gesture itself, plus the understood goals of the speaker (to pick out something to eat) and the meaning of the predicate (which is unlikely to be held to be true of the flies). In (7), the policeman is pointing into a crowd of people, which presumably contains a number of men. The success of the demonstrative *that man* in picking out the intended referent depends upon both the descriptive CN *man* and the higher salience of the referent by virtue of his frantic attempt to escape, as well as on the deictic gesture in the right general direction.

And if an entity is sufficiently salient, a deictic gesture is not necessary. Consider a situation in which two friends are sitting in a coffee shop when a man comes in and begins to noisily harass the personnel at the counter. Not wanting to draw attention to herself by staring or pointing, one friend might whisper (59) to the other:

(59) That guy is really obnoxious.

Here, the distal feature of the demonstrative, plus its descriptive content, plus (say) the fact that the hearer has obviously been distracted since the man began his behavior, pick out a most likely intended referent. In this type of context, the pronoun *he* might substitute for *that guy*, although the richer descriptive content of the demonstrative description makes it a safer bet to pick out the intended referent if one isn't sure he's already maximally salient. But *the guy* wouldn't suffice because,

---

1. To prove or make manifest by reasoning or adducing evidence
2. To describe or illustrate by experiment or practical application
3. To manifest or reveal

as well as by colloquial uses of the term e.g., Shawn will demonstrate how the new operating system works, I have demonstrated that my client cannot be guilty, Mary has demonstrated that she is trustworthy, etc.

due to its lack of demonstration (unlike the demonstrative) and its relative insensitivity to salience (unlike the pronoun), it wouldn't pick out a unique entity in the situation described.

The devices we can use to demonstrate an intended (discourse) referent along the temporal or textual coordinates are more restricted than those we can use in actual space, because these spaces themselves are only two-dimensional (for the textual, because of its temporal realization). Then by this same token, there are only two directions in which the demonstratum might lie relative to the speaker's position (the time of utterance): prior to or after, so the restricted means are generally sufficient. In these uses, demonstratives are often used as contrasting pairs, indicating relative proximity to the speaker. Assumption of the temporal space is illustrated by (60), while (8), repeated from above, illustrates textual deixis:

(60) George ran a fever one evening last week. That time he ignored it. But it happened again last night, and this time he called the doctor.

(8) This sentence is short.

The discourse deixis illustrated by *former* and *latter* is based on textual deixis. In a textual or discourse deixis, given the nature of presupposition and the interlocutors' (usual) lack of access to text following the time of utterance, demonstratives tend to lend themselves better to anaphora than to cataphora. For cataphora, we are limited to the use of the proximal demonstratives, and the intended referent must immediately follow, as in the textual deixis in (61) and the discourse deixis in (62):

(61) This is an ugly word: *hippopotamus.*

(62) Do you know these new rose hybrids, Meidiland and Peace?

All of the examples where demonstratives are used anaphorically to a preceding NP or as bound variables, as in (9)–(14) above, can be viewed as instances of discourse deixis. The proximity associated with the pronoun may be helpful in picking out an antecedent NP, based on its relative proximity in the text to the time of utterance of the demonstrative; but unlike textual deixis, the intended discourse referent of the demonstrative is the antecedent's discourse referent, and not the antecedent itself.

Discourse deixis and the anaphoric use of demonstratives differ from canonical demonstrative use in this respect: The demonstratum is a linguistic constituent, e.g. an NP or Sentence (for anaphora with *this*). And there is a slippage of the relationship between the demonstrative and its

demonstratum, so that instead of presupposing the equation of the discourse referent for the demonstrative with that for the demonstratum itself, as in (58iii), it is equated with the discourse referent introduced by the demonstratum, its "referent". That is, we use the proximity presupposition in the demonstrative to pick out (demonstrate) a maximally salient NP or other constituent. Then it is the (already familiar) discourse referent which corresponds to this demonstrated NP that satisfies the familiarity presupposition of the demonstrative NP itself. So for discourse deixis, we need to replace (58) by (58^d). The only differences are indicated here in boldface; note especially the revised clause (iii):

(58^d) **Presuppositions of Discourse Deictic Demonstrative NPs** (formal):
Given a context of evaluation C, with common ground CG s.t. $\text{Dom}_{CG} \subseteq \text{Dom}_C$, and discourse referent S s.t. $\forall i \in \text{Dom}_{CG} \forall <$ $w, g > \in \text{Sat}_{CG}[\text{speaker}(w)(g(i)) \leftrightarrow i = S]$, if a $[+(-)\text{proximal}]$ demonstrative NP$_i$ with (possibly liberalized) descriptive content Desc is felicitous in C, then

(i) $\exists \delta [\delta \in \text{Dom}_{CG}$ & $\forall < w, g > \in \text{Sat}_{CG}[\textbf{demonstration\_in\_discourse}(w)(g(\delta))$ & accompanies$(w)(g(\delta), \text{utterance}(NP_i))]$ &

(ii) $\exists j \in \text{Dom}_{CG}[\forall < w, g > \in \text{Sat}_{CG}[+(-)\text{proximal}(w)(g(j), g(S))$ & demonstratum$(w)(g(j), g(S), \delta)]$ &
$\forall k \in \text{Dom}_{CG}[\forall < w, g > \in \text{Sat}_{CG}[+(-)\text{proximal}(w)(g(k), g(S))$ & demonstratum$(w)(g(k), g(S), \delta)] \to k = j]$ & Desc$(w)(g(j))]$ &

(iii) $\forall < w, g > \in \text{Sat}_{CG}[\text{discourse} - \text{referent}w)(g(j)) = i]]$,
where:
demonstration-in-discourse is true of an individual at a world just in case that individual is a constituent (e.g., NP) in the linguistic structure of the discourse in question;
Desc(w)(g(i)) is true iff the individual assigned to *i* by *g* has the property denoted by *Desc* in world *w*;
+(-)proximal(w)(g(j),g(S)) & *demonstratum(w)(g(j),g(S),δ)* is true iff the individual assigned to *j* by *g* is in the set of entities (non-)proximal to the speaker *g(S)* and is the demonstratum intended by *g(S)* for the demonstration *g(δ)*, and
discourse-referent is a function which maps a world and and a linguistic constituent to the discourse referent whose introduction into Dom(CG) the constituent licenses in the discourse that world, so that *discourse-referent(w)(g(j))* = *i* is true iff the entity assigned to *j* by *g* is a constituent which has triggered the introduction of the discourse referent *i* into CG in *w*.

The difference between canonical and discourse deictic uses of demonstratives is minimal. We do not need to claim, as one must with the direct reference theory, that demonstrative NPs used for discourse deixis have a distinct mode of reference from those used with canonical demonstrations. One can readily see how (58^d) evolved as a variation on (58).

There is also a slippage of the role of proximity in discourse deixis. We commonly see the use of the unmarked non-proximals *that* or *those* to indicate not greater relative distance from the speaker, but simple contrast with some other, slightly less salient entity of the same sort. This varies from speaker to speaker, and in general the way that proximity specifications work in discourse deixis is harder to pin down. For example, in (9) we might use *that* instead of *this*, in (10) we might use *those* instead of *these*, and in (12) we might use *This* instead of *That*, without much change, if any, in meaning:

(9) I saw one quilt which was quite abstract, with lots of asymmetric diagonals. Another one was more traditional, worked in an old Amish pattern. This quilt was less busy than the other, but just as bold.

(10) The Russians had allowed few pieces from their collection to go on show in the West, but these were the highpoint of the exhibition. (Maclaran 1982)

(12) On every team there is one player who is not as strong as the rest. That weakest member is the one to play hardest against. (Maclaran 1982)

In these examples, a pronoun or a definite description might be substituted for the demonstrative. But the demonstratives seem to be used for one of two reasons: They tend to carry an implication of contrast, implicating that other members of a relevant contrast set do not have the properties predicated of the demonstrative (this seems to be the case in (9), (10) and (12), for example). And, as noted by Isard (1975) and Maclaran (1982) in slightly different terms, they tend to be used when the discourse referent which satisfies their familiarity is only weakly familiar, based on contextual entailments, especially if it contrasts in this respect with other, strongly familiar discourse referents which are alternative candidates to satisfy that familiarity presupposition. This distinction in degree of familiarity can be used to assist in anaphora resolution, as seems to be the case in (63), while the lack of contrast or novelty in (64) makes the demonstratives seem infelicitous:

(63) First square nineteen, then cube it/that. (Isard 1975)

> *it*: 'nineteen'
> *that*: 'nineteen squared'

(64) A car drew up at the door. Two dark-suited men got out of it/the car/?this/?that, then it/?this/?that disappeared down the drive again. (after Maclaran 1982)

I speculate that the contrast involved is based on the proximity distinctions which are central to demonstratives in their canonical use, while the association with relative novelty comes from the canonical use as well, where the discourse referent which satisfies the demonstrative's familiarity presupposition is only just made weakly familiar via the accompanying deictic gesture at the time of utterance. By a Gricean quantity implicature, use of a demonstrative instead of a pronoun or definite description implicates that one of these two conditions — contrast or weaker familiarity — obtains.

Thus, we see that extension of the use of demonstratives into the more abstract space of discourse leads to a slight shift in their sense, so that proximity ceases to play precisely the same role that it plays in the canonical use. However, even there, implications based on the proximity specifications and on the presupposition of a demonstration play the central role in determining when a demonstrative is felicitous, or even preferred over another type of definite. Hence, I would argue, the central features of the presupposition in (58) are retained in discourse deixis — the presupposition of proximity (if only indirectly, and in the modified form of an implication of contrast) and of demonstration (if only in the form of implication that the intended discourse referent is merely weakly familiar). In other respects, the demonstratives are simply descriptive or pronominal definites, and hence their distribution overlaps significantly in discourse with that of those other NP types.

1.5.3 Accounting for direct reference effects

Given the theory outlined in the preceding sections, we want to show how it can account for the direct reference effects observed by Kaplan in examples like (17b) and (17c), repeated here with indices on the NPs for convenience: [19]

---

[19]My discussion of the direct reference effects in intensional contexts is partly inspired by unpublished work of Heim (1985), in which she argues that it is presuppositions associated with the demonstratives which account for the direct reference effects in counterfactual contexts, and not direct reference *per se*. However, in the end the view presented here differs from hers in several important respects. She does not subscribe to the general theory of definites outlined above, nor to the theory of

(17) Context (CG): Charles is from Charleston, West Virginia. Paul is
from St. Paul, Minnesota. δ is a pointing by the speaker in the
direction of Paul, who is seated on a chair in front of the speaker:

Look over here [δ, the gesture held throughout the next sentence].
If Charles and Paul had changed chairs, then

a) the man being pointed at would be from Charleston
b) he[δ] would be from Charleston.
c) this man being pointed at [δ] would be from Charleston.

I will assume a theory of counterfactual interpretation which is a
variation on the general approach of Lewis (1973). Roughly, in a static
version of the approach, for a given counterfactual *If ϕ, then would ψ*,
in order for the counterfactual to be true in a given world w, ψ must be
true in a set of worlds determined as follows: We first consider all those
worlds in which ϕ is true. Now among these worlds, we consider only
those in which are true as many as possible of the propositions which
are true in w. These are then the ϕ-counterfactual worlds accessible to
w, call them $W^{\phi/w}$. If ψ is true in all the worlds in $W^{\phi/w}$, then the whole
conditional is true in w; otherwise, it is false in w.

For (17b) or (17c), in determining $W^{\phi/w}$ for a given world of eval-
uation w, we will only consider worlds in which Charles and Paul have
changed chairs. But as many of the other propositions true in w which
are compatible with that exchange should be true in each world in $W^{\phi/w}$.
In particular, since Paul is from St. Paul in the actual world, and there
is no conflict between the truth of that proposition and the counterfac-
tual exchange, then we should rule out those counterfactual worlds in
which (the counterpart of) Paul is from some other place. When we utter
the demonstrative *he$_i$* or *this man being pointed at$_i$*, the demonstrative
presuppositions in (58) must be satisfied. In the context specified, we
have a familiar demonstration δ_2 and it is known that its demonstra-
tum in the actual situation is Paul. Technically, the interlocutors have
a discourse referent *2* such that for any one of the relevant assignment
function/world pairs $<w,g>$ in the satisfaction set of the CG, *g(2)* is
entailed by CG to be the demonstratum of δ_2 in w and to be Paul. This
satisfies the first two clauses of (58) for the use of a demonstrative like

---

demonstratives as definites with presupposed demonstrations, nor does she explicitly
assume, as I do crucially, the non-linguistic nature of demonstration or the use of
dual indexing. Hence, my presentation should not be taken to reflect her views on
demonstratives.

he or *this man being pointed at*. But (58iii) requires that the discourse referent corresponding to the demonstratum in CG, 2, be the same as the discourse referent which satisfies the demonstrative NP's familiarity presupposition. I.e., in (17b) and (17c), felicity requires that $i = 2$. Hence, the demonstrative NP must refer to Paul, the actual demonstratum associated with the discourse referent for the demonstration in the common ground. Since all the worlds in $W^{\phi/w}$ entail that Paul is from St. Paul, the consequent is false in all those worlds, and hence the whole conditional will be false in w.

But in the interpretation of (17a), there is no requirement on the discourse referent for the definite description that it be the same as the demonstratum; it need only be familiar and unique under its (possibly liberalized) descriptive content, satisfying (40). So, for the definite description, we could set $i = 2$, in which case the NP has the sense of 'the man who I'm now pointing at', yielding the same falsity as (b) and (c). In this case, what is going on is that the familiarity presupposition of the definite description is being satisfied globally, with reference to the fact that the speaker is actually pointing at Paul. But we can also set $i = 1$, so that the relative clause has the sense 'the man who I would be pointing at in that counterfactual situation', making the counterfactual true. In the second case, the familiarity presupposition of the definite description is satisfied locally, under the scope of the counterfactual would; and the counterfactual assumption that Charles and Paul have changed places will guarantee that in all the worlds in which we consider the truth of the consequent, there will be someone sitting in the chair being pointed at by the speaker, namely (the counterpart of) Charles, who is in fact from Charleston. [20]

As Zoltn Szab (p.c.) pointed out to me, even when the common ground doesn't contain information about where Paul was from, we still feel that (17b) or (17c) would be false in a given world, so long as he wasn't from Charleston (in that world). This is true. In such a case, in some worlds in the common ground of the interlocutors Paul might be from Charleston, in others from St. Paul, etc. The counterfactual would be true in those worlds in which Paul was from Charleston, false in the others. But the truth of the entire conditional in any given world would be purely a function of the truth of the consequent in that world; hence, the conditional itself would be judged infelicitous because the counterfactual antecedent would be irrelevant to the conditional's truth.

---

[20] I emphasize that the use of indices in this explanation is merely a bookkeeping device, to help keep the different possible discourse referents straight; the semantic result is a consequence of the way that presupposition projection works in this type of theory (see Heim 1983), and not some sort of representational magic.

Recall that in (27) we observed direct reference effects with discourse deixis, instead of spatial deixis:

(27) Melanctha has a dog_1 and a cat_2, both of whom are getting very old.
The cat_2 is her favorite, but the dog_1 is more loyal.
If I hadn't uttered the last sentence, the $latter_i[\delta_j]$ would spit up hairballs and the $former_k[\delta_m]$ would bark.

The antecedent of the conditional sets up a counterfactual situation in which the structure of the preceding discourse is different than it actually is, i.e. in which the only preceding utterance is the first sentence. Yet, as the discussion of demonstrations above predicts, in picking out the intended demonstrata for the demonstrative head nouns in *the latter* and *the former* we directly consult the actual space of the discourse, ignoring that counterfactual discourse structure in which the third, conditional sentence directly follows the first. In keeping with the general character of discourse deixis, however, as given in (58^d), instead of equating the discourse referent for the demonstrative *the former* with that for the demonstrated NP *the cat* itself, we equate it with the discourse referent which satisfies the familiarity presupposition of that (definite) NP, which, in any mapping of the information in the common ground onto a model, will always map onto a cat. Then, the counterfactual is false, assuming that Melanctha's cat wouldn't start barking just because the speaker had omitted uttering the second sentence. [21] On this account of (27), we do not need to worry about singular propositions or their constituents, something which appeared to pose a problem for the direct reference approach.

Finally, let us reconsider Heim's problem for Kaplan's theory, where (23) and (24) are incorrectly predicted to be synonymous, both either necessarily true or necessarily false. Recall that the context is such that δ_1 is a pointing by the speaker to an image of a chair to her left, δ_2 is a pointing to an image of a chair to her right, the latter perhaps only a reflection in a mirror:

(23) $That[\delta_1]$ is $that[\delta_2]$.

(24) $That[\delta_1]$ might well be $that[\delta_2]$.

(25) If $that[\delta_1]$ were $that[\delta_2]$, there would be only one chair in the house.

---

[21] Alternatively, one might assume that *the former* itself is interpreted counterfactually, so that it takes its referent to be the dog. But it would still presuppose that its discourse referent was that of the actual demonstratum, the latter being *the cat*, thus leading to a contradiction.

The present theory avoids this prediction by eschewing direct reference. In (23), the two demonstratives are merely two definite NPs. Each is conventionally linked to the discourse referent corresponding to the demonstratum of the accompanying demonstration. But whether or not the demonstrata are identical is a contingent fact, dependent on facts about the demonstrations and other factors in the world, so (23) will be true in some circumstances, false in others. But even when (23) is, in fact, false, its truth is compatible with all that's known in the situation of utterance Heim describes and, hence, (24) is true. Therefore, as desired, (23) and (24) are not truth conditionally synonymous on the present account. Further, even though (23) is false, the truth of (25) is still contingent on other facts about the furnishings of the house in question; e.g. if there are other chairs in the next room, (23) might be false and (25) false as well.

None of this assumes that a demonstrative NP itself is directly referential, and in fact it would be difficult to make sense of that notion in the present framework, in which meaning has to do with the information an utterance contributes to a given context of utterance. However, demonstratives do presuppose a demonstration, and in the canonical cases involving a deictic gesture, the demonstratum of that demonstration, an individual in the actual world, will serve to anchor the interpretation of the demonstrative in such a way that it will effectively act like a rigid designator in modal contexts. Because of the actuality of the anchor and the interpretive priority of presupposition satisfaction over updating with proffered information, the demonstrative behaves as if it takes scope over the modal (or any other operator in the proffered content).

Thus, the current theory can account for direct reference effects without the assumption of direct reference as a distinct mode of referring. The direct reference effect is indirect. That is to say, it is demonstrations that are directly "referential", not nominal reference. Although demonstratives, like other definites, do not refer at all, a competent speaker will always use them to pick out, via the associated demonstration, a speaker's referent in some actual space associated with the utterance situation. In discourse, that actual space may be that of the linguistic structure of the discourse itself, in discourse deixis.

Notice that the present account ties together Kaplan's two theses, from (21), which otherwise are logically independent.

(21) Kaplan's theory of English demonstrative NPs:

    (a) Demonstratives are incomplete expressions which must be completed by a demonstration.

(b) Demonstratives are directly referential.

Here, the fact that demonstratives behave as if directly referential is due to the fact that they presuppose an accompanying demonstration, which demonstration is directly referential (as it were). Only (a) need be stipulated. And so we can eat our Fregean cake and have (the best of) Kaplan, too.

1.6 Conclusion: Theories of context

According to Kaplan, the difference between a demonstrative and a definite description is that the two types of NP have distinct modes of reference: Demonstratives, which require an accompanying demonstration in order to be semantically complete, have direct reference, picking out the intended referent without the mediation of a Fregean sense. Definite descriptions display non-direct reference, picking out a sense via the NP's descriptive content, with the referent then determined via the world (or circumstance) of evaluation. However, because not all uses of demonstratives are plausibly directly referential, Kaplan appears to be driven to claim that demonstratives are systematically ambiguous, with no account of how the homonyms might have developed out of a common historical ancestor.

On the present account, demonstratives and definite desciptions are both types of definite NPs, and hence both have presuppositions of familiarity and informational uniqueness. The difference between them is this: The demonstrative, but not the definite description, carries a presupposition that the discourse referent which makes it familiar is anchored by information in the common ground to an individual in the world which is directly indicated by the speaker at the time of utterance of the demonstrative NP. This presupposition will have much the same effect as direct reference, so that the demonstrative will behave as a rigid designator in counterfactual contexts. Hence, this theory permits a uniform treatment of demonstrative NPs, both pronominal and descriptive, while accounting for the directly referential effects in certain uses.

It seems to me that at the heart of the difference between the two views of demonstratives considered here, Kaplan's and my own, is a different conception of the notion of context of utterance. To see this, consider the relationship between Kaplan's notion of the Character of an expression, and the view of the meaning of an expression in a dynamic view of interpretation, the latter exemplified here by Heim's (1982,1992) notion of the Context Change Potential of an expression: [22]

---

[22] One might instead place this account in one of the other contemporary theories of dynamic context, e.g. those of Barwise and Perry (1983), Kamp and Reyle (1993),

Character: a function from contexts of utterance to contents, where contents are the usual functions (individual concepts, propositions, etc.) from circumstances of evaluation (like worlds or situations) to denotations.

Context Change Potential: a function from contexts to contexts; the Context Change Potential is defined for a given argument context iff the context satisfies all the presuppositions of the corresponding expression. The output context is an updating of the input to reflect the proffered content of the expression.

We can see that from the context change perspective, the meaning of an expression has two facets: presuppositional content, used to determine felicity and hence definedness for a given context; and proffered content, the way in which a felicitous input context is updated to yield a new context. If we take a dynamic context to be something like the common ground at a given point in a discourse, the Context Change Potential for an expression can be taken to encode the information in Kaplan's Character. [23] For example, if part of the Character of a given expression, like *I* or *we*, is a specification that it be anchored to the speaker in the context of utterance, then we might say that the Context Change Potential for the expression is only defined for a certain context if in that context the discourse referent which satisfies the expression's familiarity presupposition is the discourse referent for the speaker. If the speaker is pointing at an object in the actual world, then the fact of that demonstration and the identity of the demonstratum are known in the common ground/context, and only such a context can satisfy the presuppositions of an accompanying demonstrative NP. Etc. But the richer notion of Context Change Potential cannot be retrieved from that of Character. The latter seems to be confined to retrieving values for distinguished elements of the context of utterance — speaker, audience, location and time of utterance, etc. The Context Change Potential and associated notion of context are conceptually much richer than this, designed to permit an account of the full range of conventional presuppositions in language, as well for context update. Since we want a theory of presupposition anyway, and, I would argue, the satisfaction theories of presupposition embodied in Context Change Semantics and its kin are

---

Groenendijk and Stokhof (1990), or Chierchia (1995). What is crucial here is that context is dynamically updated, rich enough to enable the interlocutors to keep track of different types of information, and relevant for presupposition satisfaction.

[23] Similarly, the Context Change Potential can capture Perry's (1977) "procedure for determining reference from a context", his proposed understanding of the Fregean sense of an utterance containing a demonstrative. As Perry notes, this is closely related to Kaplan's notion of *character*.

demonstrably superior to any alternatives, the richer notion of Context Change Potential seems to be independently well-motivated. Hence, one might argue, we can dispense with Character *per se*.

But the Context Change Potential and the theory on which it is based *does* presume a conceptually different notion of context than Kaplan's. The latter seems to assume that the context of utterance is the actual physical situation of the discourse, perhaps characterized as a set of distinguished elements like the actual speaker, audience, etc. But in Context Change Semantics, context is a more abstract notion, not directly a physical space or actual entities in the world, although it of course encodes information about the concrete physical situation in which the utterance occurs and about the entities therein. The notion of context independently motivated by facets of the theory of presupposition is that of an organized collection of various types of information. That information is partly propositional, including the interlocutors' presuppositions. But the context also contains information about the discourse itself, including information about what's been referred to therein (the familiar discourse referents), about the questions under discussion in the discourse and the discourse goals and plans which these suggest (Roberts 1996b), and of course, about the interlocutors and their roles at various junctures in the discourse — who's speaker, who's addressee, etc.

How can we decide between these two notions? We need to ask which notion of context yields a theory of demonstratives which is optimal both in empirical adequacy — getting the facts right — and in its generality — accounting for related phenomena in an insightful, succinct fashion. And of course, all things being equal, we would like to adopt a theory of context which is independently motivated by several facets of interpretation. I think that on all these grounds, the notion of context as an organized body of information, abstractly accessible to all interlocutors, is superior to that of context as a concrete situation or collection of concrete entities.

References

Anderson 1971. John M. Anderson: *The Grammar of Case: Towards a Localistic Theory*. Cambridge University Press, London.

Barwise and Perry 1983. Jon Barwise and John Perry: *Situations and Attitudes*. MIT Press.

Birner and Ward 1994. Betty Birner and Gregory Ward: Uniqueness, familiarity, and the definite article in English. *Proceedings of the Annual Meeting of the Berkeley Linguistic Society*, 93–102.

Chierchia 1995. Gennaro Chierchia: *Dynamics of Meaning: Anaphora, pre-*

supposition, and the meaning of grammar. University of Chicago Press.

Clark 1977. Herbert H. Clark: Bridging. In P.N. Johnson-Laird and P.C. Wason (Eds.) *Thinking: Readings in Cognitive Science*, Cambridge University Press, 411–420.

Clark, Schreuder and Buttrick 1983. Herbert H. Clark, Robert Schreuder, and Samuel Buttrick: Common ground and the understanding of demonstrative reference. *Journal of Verbal Learning and Verbal Behavior*, 22:245–258.

Comrie 1981. Bernard Comrie: *Language universals and linguistic typology : syntax and morphology*. Blackwell, Oxford.

Dekker 1997. Paul Dekker: On denoting descriptions. ILLC Research Report and Technical Notes Series #LP-97-02, Institute for Logic, Language and Computation, University of Amsterdam.

Donnellan 1966. Keith Donnellan: Reference and definite descriptions. *Philosophical Review* 75:281–304.

Evans 1977. Gareth Evans: Pronouns, quantifiers and relative clauses (I). *Canadian Journal of Philosophy*, 7:467–536.

Evans 1980. Gareth Evans: Pronouns. *Linguistic Inquiry* 11(2):337–362.

Fillmore 1975. Charles J. Fillmore: Santa Cruz Lectures on Deixis, 1971. Indiana University Linguistics Club.

Fraurud 1990. Kari Fraurud: Definiteness and the processing of NP's in natural discourse. *Journal of Semantics* 7:395–433.

Grice 1957. H. P. Grice: Meaning. *Philosophical Review* 66:377–88. Reprinted in D.D. Steinberg and L.A. Jakobovits (Eds.) *Semantics: An interdisciplinary reader in philosophy, linguistics and psychology*. Cambridge University Press., 53–59. And in H.P. Grice, *Studies in the Way of Words*, 217–223.

Groenendijk and Stokhof 1990. Jeroen Groenendijk and Martin Stokhof: Dynamic Montague Grammar. In L. Klman and L. Plos (Eds.) *Papers from the Second Symposium on Logic and Language*. Adakmiai Kiad, Budapest, 3–48.

Heim 1982. Irene Heim: *The Semantics of Definite and Indefinite Noun Phrases*. Ph.D. dissertation, University of Massachusetts at Amherst.

Heim 1983. Irene Heim: On the projection problem for presuppositions. In M. Barlow, D. Flickinger, and M. Wescoat (Ed.), *Second Annual West Coast Conference on Formal Linguistics*, 114–125. Stanford University.

Heim 1985. Irene Heim: Direct reference explained away. Unpublished ms., University of Texas at Austin.

Heim 1990. Irene Heim: E-type pronouns and donkey anaphora. *Linguistics and Philosophy*, 13:137–177.

Heim 1992. Irene Heim: Presupposition projection and the semantics of attitude verbs. *Journal of Semantics* 9:183–221.

Isaard 1975. Stephen Isaard: Changing the context. In Edward L. Keenan (Ed.) *Formal Semantics of Natural Language*. Cambridge: Cambridge University Press, 287–296.

Jackendoff 1983. Ray Jackendoff: *Semantics and cognition*. MIT Press, Cambridge, MA.

Kadmon 1987. Nirit Kadmon: *On Unique and Non-Unique Reference and Asymmetric Quantification*. Ph.D. dissertation. UMass, Amherst.

Kadmon 1990. Nirit Kadmon: Uniqueness. *Linguistics and Philosophy* 13:273–324.

Kamp 1971. Hans Kamp: Formal properties of 'Now'. *Theoria* 37:227–273.

Kamp 1981. Hans Kamp: A theory of truth and semantic representation. In Jeroen Groenendijk, Theo M. V. Janssen, and Martin Stokhof (Eds.), *Formal Methods in the Study of Language*. Amsterdam: Mathematische Centrum.

Kaplan 1977. David Kaplan: Demonstratives, draft #2. Ms., UCLA Philosophy Department. Revised and published as: Demonstratives: An essay on the semantics, logic, metaphysics, and epistemology of demonstratives and other indexicals. In Joseph Almog, John Perry, and Howard Wettstein (Eds.) *Themes from Kaplan*, Oxford University Press, 1989, pp.481–563.

Kaplan 1978. David Kaplan: Dthat. In Peter Cole (Eds.) *Syntax and Semantics Volume 9*, Academic Press, New York, pp.221–43.

Kamp and Reyle 1993. Hans Kamp and Uwe Reyle: *From Discourse to Logic: An introduction to modeltheoretic semantics of natural language, formal logic and Discourse Representation Theory*. Dordrecht: Kluwer.

Karttunen 1973. Lauri Karttunen: Presuppositions of compound sentences. *Linguistic Inquiry* 4:169–193.

Karttunen 1976. Lauri Karttunen: Discourse referents. In James D. McCawley (Ed.) *Syntax and Semantics, Volume 7: Notes from the Linguistic Underground*. Academic Press, New York, 363–385.

Kratzer 1981. Angelica Kratzer: The notional category of modality. In H. J. Eikmeyer and H. Rieser (Eds.) *Words, Worlds and Contexts*. de Gruyter, Berlin, 38–74.

Kratzer 1989. Angelica Kratzer: An investigation into the lumps of thought. *Linguistics and Philosophy* 12:607–653.

Kripke 1977. Saul Kripke: Speaker's reference and semantic reference. In P.A. French, T.E. Uehling and H.K. Wettstein (Eds.) *Contemporary Perspectives in the Philosophy of Language*. University of Minnesota Press, Minneapolis.

Lewis 1973. David Lewis: *Counterfactuals*. Harvard University Press.

Lewis 1979. David Lewis: Score-keeping in a language game. In Rainer Bauerle, Urs Egli and Arnim von Stechow (Eds.) *Semantics from a Different Point of View*. Springer, Berlin.

Löbner 1987: Sebastian Löbner: Definites. *Journal of Semantics* 4:279–326.

Lyons 1977. John Lyons: *Semantics*. Cambridge University Press.

Maclaran 1982. Rose Maclaran: *The Semantics and Pragmatics of the English Demonstratives*. Ph.D. dissertation, Cornell University.

Neale 1990. Stephen Neale: *Descriptions*. MIT Press (Bradford Books), Cambridge, MA.

Neale 1990b. Stephen Neale: Descriptive Pronouns and Donkey Anaphora. *Journal of Philosophy* 87.3:113–150.

Nunberg 1977. Geoffrey D. Nunberg: *The Pragmatics of Reference*. Ph.D. dissertation, City University of New York.

Nunberg 1993. Geoffrey D. Nunberg: Indexicality and deixis, *Linguistics and Philosophy* 16:1–43.

Perry 1977. John Perry: Frege on Demonstratives. *Philosophical Review* 86:474–97.

Poesio and Vieira 1998. Massimo Poesio and Renata Vieira: A Corpus-Based Investigation of Definite Description Use. *Computational Linguistics* 24.2.

Roberts 1987. Craige Roberts: *Modal Subordination, Anaphora, and Distributivity*. Ph.D. dissertation, University of Massachusetts at Amherst. Reprinted with extensive revisions, 1990, Garland Press (Outstanding Dissertations in Linguistics Series), New York.

Roberts 1995. Craige Roberts: Domain restriction in dynamic semantics. In Emmon Bach, Eloise Jelinek, Angelika Kratzer and Barbara H. Partee (Eds.) *Quantification in Natural Languages*, Kluwer, Dordrecht, 661–700.

Roberts 1996. Craige Roberts: Anaphora in intensional contexts. In Shalom Lappin (Ed.) *The Handbook of Contemporary Semantic Theory*. Blackwell, Oxford, 215–246.

Roberts 1996b. Craige Roberts Information Structure: Towards an integrated theory of formal pragmatics. In Jae-Hak Yoon and Andreas Kathol (Eds.) *OSU Working Papers in Linguistics, Volume 49: Papers in Semantics*. The Ohio State University Department of Linguistics. Available in postscript form, infostr.ps, via anonymous ftp from ling.ohio-state.edu.

Roberts 1998. Craige Roberts: The place of Centering in a general theory of anaphora resolution. In Walker et al. (Eds.), *Centering Theory in Discourse*, Oxford University Press.359–400.

Roberts (to appear). Craige Roberts: Uniqueness presuppositions in def-

inite noun phrases. Under revision for *Linguistics and Philosophy*. Ms. available in postscript form, demonstratives.ps, via anonymous ftp from ling.ohio-state.edu.

Russell 1905. Bertrand Russell: On denoting. *Mind*, 66:479–93.

Sperber and Wilson 1986: Dan Sperber and Deirdre Wilson: *Relevance: Communication and Cognition*. Harvard University Press.

Stalnaker 1974. Robert Stalnaker: Pragmatic presuppositions. In M. Munitz and D. Unger (Eds.) *Semantics and Philosophy*. New York University Press, 197–219.

Stalnaker 1974. Robert Stalnaker: Assertion. In Peter Cole (Ed.) *Syntax and Semantics 9*, Academic Press, New York.

Strawson 1950. P.F. Strawson: On referring. *Mind* 59:320–344.

Von Fintel 1994. Kai von Fintel: *Restrictions on Quantifier Domains*. Ph.D. dissertation, University of Massachusetts at Amherst.

Walker 1993. Marilyn A. Walker: *Informational Redundancy and Resource Bounds in Discourse*. Ph.D. dissertation, University of Pennsylvania.