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# The Semantics and Pragmatics of Complex Demonstratives

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*Misled by grammar, the great majority of logicians who have dealt with this question have dealt with it on mistaken lines. They have regarded grammatical form as a surer guide in analysis than, in fact, it is.*

—Bertrand Russell

## 1 Introduction

Ever since Russell, simple demonstratives<sup>1</sup> have been championed as the paradigm of a singular referring term whose meaning on an occasion of use is simply the object to which it refers. Russell thought at one time that demonstratives were the only genuine logically proper names, and that only thoughts expressed using them were genuinely singular thoughts. Demonstratives have long been thought – as on Russell’s view – to be the primitive form of contact between thought and the world as it is expressed in language. Complex demonstratives, expressions of the form ‘That F’, ‘Those Fs’<sup>2</sup>, etc., have been traditionally assimilated to simple demonstratives, that is, like simple demonstratives, they too have been treated as logically proper names in Russell’s sense. (Indeed, philosophers discussing simple demonstratives often use *complex* demonstratives in examples without remark.) Those philosophers who have treated complex demonstratives as singular referring terms – the majority – have often seen in them a key to understanding how thought reaches out to the world, a key to, in McGinn’s phrase, “the mechanism of reference.”<sup>3</sup>

Complex demonstratives differ from simple demonstratives by virtue of a nominal. The central question about their semantics is how to understand the contribution of this nominal to sentences in which complex demonstratives occur. This, in turn, is at least the first step in understanding the structure of the thoughts we express using complex demonstratives, and is key to determining whether an understanding of complex demonstratives in particular will give us insight into how thought reaches out to the world.

Our primary aim in this paper will be to present a novel account of the semantics of complex demonstratives. The proposal has implications for a wide range of discussions in the philosophy

of language and mind. But it will not be our aim to trace these out here.

There have been a variety of proposals, each in response to different, and apparently conflicting, intuitions about the way in which the nominal contributes to the semantics of a sentence of the form 'That F is G' (or, more generally, to sentence of the form  $\phi(\text{that } F)$ , where '...' in ' $\phi(\dots)$ ' represents any noun phrase location). In a recent discussion, Larson and Segal<sup>4</sup> distinguish four such ways. (1) It can contribute to the sentence's truth conditions; (2) it can constrain what the demonstrative expression refers to; (3) it can do both; or (4) it can do neither. Larson and Segal argue for the weakest alternative, (4). Likewise Schiffer and Perry hold that complex demonstratives are singular terms which can contribute *only* their referents to the propositions expressed by uses of sentences in which they occur.<sup>5</sup> On this view, the nominal 'F' in 'that F' plays only a pragmatic role in bringing our attention to what the speaker is demonstrating with his use of 'that', an object which may still be picked out even if the nominal fails to apply to it. In contrast, Kaplan<sup>6</sup> defends alternative (2), arguing that 'that F' contributes *no* object to the proposition expressed by a sentence of the form 'That F is G' *unless* its referent is F. On Kaplan's view, in uttering 'That man is a thief', if the object one tries to demonstrate with an utterance of 'that' is not a man, nothing is demonstrated. On this account, the complex demonstrative in use functions rather like a picture with an arrow attached to it; the picture filters out objects other than those that fit it in the direction the arrow points. McGinn, Peacocke, Davies, Braun, Recanati, and Borg likewise adopt a view according to which the contribution of the nominal in 'That F is G' is to restrict which object 'is G' is evaluated with respect to.<sup>7</sup>

All these authors agree that the nominal in a complex demonstrative contributes nothing to the truth conditions of sentences in which it occurs. In contrast, Richard<sup>8</sup> argues that, in addition to restricting what can be the referent, the nominal contributes to the truth conditions of sentences containing the complex demonstrative; in particular, the sentence 'That F is G' cannot be true unless the referent of the demonstrative is F, and is false if the referent is not. In effect, Richard is defending (3). So (2)-(4) are occupied by some philosopher or other.

To anticipate, we will defend something like (1), namely, that the nominal does not semantically constrain what the demonstrative refers to, yet it does contribute to the truth conditions of any sentence in which it occurs. We say *something like* (1), because, as will

emerge, we reject an important presupposition of this taxonomy.

The classification between (1)-(4), though it looks exhaustive, is in an important way deficient, because it fails to elicit the most important division among theories about complex demonstratives. It presupposes they are singular terms.<sup>9</sup> (This is the presupposition that we will eventually reject, though in a novel way.) Though this has been the dominant view, there are dissenting voices. For complex demonstratives also exhibit many features more usually associated with quantified noun phrases, such as 'All philosophers', 'The King of France', and 'Someone in the rain'. Since it is difficult to see how to accommodate these features if complex demonstratives are singular referring terms, some authors have been led to treat all demonstrative expressions as quantifiers in order to provide a unified account of both their simple and complex forms. Taylor,<sup>10</sup> for example, endorses this view, basing his position largely on data provided by complex demonstratives, data we will review below. Barwise and Cooper<sup>11</sup> suggest that all noun phrases are generalized quantifiers, including demonstrative constructions. More recently, Neale<sup>12</sup> has suggested that all *complex* noun phrases should be treated as quantificational, and that demonstratives in particular might be treated as equivalent to a certain sort of rigidified definite descriptions in order to bring complex demonstratives into conformity with this thesis. (Davidson<sup>13</sup> may be construed as anticipating a quantificational treatment similar to Neale's.) Another recent suggestion along these lines, though rather different in some respects from Neale's, is made in King.<sup>14</sup>

It would be fair to conclude from this quick survey that we do not yet understand very well the semantic role of complex demonstratives; we have not yet, to borrow an apt phrase from Higginbotham, seen through "the haze of usage." We will argue that no position which has been held up to now is correct, though each major camp has identified essential features of complex demonstratives. The difficulty for each camp has been that they have either denied or ignored the evidence on which the other bases its view. Kaplan, on the one hand, whom one foremost associates with the vast literature on demonstratives, goes astray because he focuses too much on simple demonstratives to the exclusion of considering how they enter into more complex constructions, and has consequently taken simple demonstratives as a paradigm for all demonstrative constructions. Those authors, on the other hand, who want to treat demonstratives

as quantifier-expressions have tended to ignore Kaplan's insights. They too, in a way, have failed to take a broad enough view of the use of demonstratives in natural languages. Both camps have insights that any adequate account of complex demonstratives *must* accommodate. We will show how to reconcile the view that *demonstratives* are genuinely singular referring terms with the view that *complex* demonstratives function like (restricted) quantifiers.

In developing our argument, we will first consider evidence for treating demonstrative expressions as quantifiers (and not as singular terms), and then consider how one might try to integrate this suggestion into a semantics for demonstratives. Seeing why the attempt fails will help to uncover the limit of the analogies between the functioning of demonstrative expressions and true quantifiers. We then offer a semantic account which explains the quantifier-like features of complex demonstratives, while retaining the intuitively compelling view that simple demonstratives—everywhere they occur—are themselves simply context sensitive singular referring terms. Our account sheds considerable light on a number of conflicting intuitions about the role of, e.g., 'man' in 'That man was once a teacher of mine'. In particular, it accommodates the views that one can successfully refer to an object using this sentence without its being a man, that the nominal plays a role in helping an auditor to figure out what is being demonstrated, and that the object must be a man in order for an utterance of this sentence to be true. In the appendix, we complete our account of the semantics of demonstratives by formulating a reference clause for simple demonstratives.

## 2 Quantifier-like features of demonstrative expressions

One of the most striking analogies between demonstratives and quantifier words is that they are *determiners*; like quantifier words, and unlike other indexicals<sup>15</sup> such as 'I', 'he', 'she', 'now', 'there', etc., demonstratives combine with nominals to form complex noun phrases.<sup>16</sup> Thus, compare [1]-[3].

- |                                     |  |
|-------------------------------------|--|
| [1] Some professor bored us stiff.  | Quantifier word + nominal => noun phrase |
| [2] That professor bored us stiff.  | Demonstrative + nominal => noun phrase   |
| [3] *John professor bored us stiff. | Name + nominal ≠> noun phrase            |

[3] is ill-formed, whereas [1] and [2] are not. If possible, a theory of complex demonstratives should explain why demonstratives can combine with nominals to form noun phrases that play the

same grammatical role as complex quantifier phrases. An appealing hypothesis for why this is so is that [2] is an instance of the same rule that leads to [1], that is, demonstratives are quantifier words and complex demonstratives are quantified noun phrases.

The appeal of this hypothesis is increased by the observation that the nominal in a complex demonstrative does not appear to be semantically inert. Thus, if a determiner has existential import, as with 'some', 'few', 'the' (represented as 'Det<sub>∃</sub>'), then instances of the following inference schema are semantically valid:

Det<sub>∃</sub> F is/are G

So, some F is G

So then are instances of the schema:

Det<sub>∃</sub> F is/are G

So, something is F and G

This suggests that demonstrative determiners are quantifier words with existential import since the inference schemes hold for them as well.

Furthermore, sentences such as [4]-[7] do not strike us as ill-formed, and it is easy enough to imagine appropriate contexts of utterance (see §5).

[4] Someone loathes that man to *his* right.

[5] The man in the white hat hates that man addressing *him*.

[6] Each woman in this room admires that man whom *she* sees at the podium.

[7] All of the students hated that professor who flunked *them*.

These data are all perfectly ordinary; each involves a pronoun in the complex demonstrative being bound by the quantifier outside of it. It is difficult to see how to make sense of quantification into complex demonstratives on the assumption that they are singular referring terms. In this respect, complex demonstratives exhibit important similarities to quantified noun phrases. Compare [4] with [8].

[8] Someone loathes a man to his right.

If demonstratives were quantifier words, and complex demonstratives were quantified noun phrases, we would have a ready explanation of the intelligibility of [4]-[7].

In addition, pronouns outside the complex demonstrative can be anaphoric on quantifier

phrases inside the nominal of a complex demonstrative, as illustrated in [9].

- [9] That shark that took a swimmer off Flager beach last summer attacked him inside the sandbar.

In [9], 'a swimmer off Flager beach last summer', which is a part of the nominal of the complex demonstrative, binds the pronoun 'him' in the predicate.

Clearly, we ordinarily associate these features with restricted quantifiers, as in [10]-[11].

- [10] Every man who has a son loves *him*.

- [11] The woman standing beside a bus is going to board *it*.

We would have an explanation of these phenomena if 'that' were a quantifier word.

It is not clear what account could be given of the phenomena exhibited in [4]-[7], and [9] if 'that F' is treated as a singular referring term, for that would be to treat a sentence of the form 'That F is G' as constructed from the matrix 'x is G' by replacing 'x' with a singular term whose role is to provide an argument for the function expressed by the matrix. This renders mysterious how the material in the nominal could interact semantically with the rest of the sentence.

### 3 Demonstratives as quantifiers

These analogies between complex demonstratives and restricted quantifiers cast doubt on the traditional view that demonstratives are context sensitive singular terms. Indeed, in view of their grammatical role as determiners, it is not implausible that demonstratives are context sensitive quantifier words, and not context sensitive singular terms. But, then, it should be possible to provide a semantic treatment for demonstratives parallel to that for (restricted) quantifiers. In this section, we consider how one might try to extend the standard treatment of (restricted) quantifiers to demonstrative expressions. We take 'that' as a representative of the demonstrative determiners. First, we consider and argue against the view that 'that' itself might be a quantifier word. We then consider whether it can be treated as a kind of specialized context sensitive definite description. We reject this identification as well. This leaves us the task of explaining why complex demonstratives exhibit systematic analogies with quantifiers, the topic of §4.

Nothing important will be lost, and considerable convenience gained, if we devise, as is customary, our semantics for a regimented language, English\*, which is like English except that variables are systematically introduced into argument places explicitly along with devices for



indicating scope relations among quantifiers. We will represent an English sentence such as 'Everyone brought someone' as in [12].

[12] [For every  $x$ ][there is some  $y$ ]( $x$  brought  $y$ ).

[12] makes explicit the order in which its quantifiers are to be evaluated. For sentences such as 'Few philosophers are rich' we will adopt the standard notation for restricted quantifiers, as in [13], read as 'Few  $x$  *such that*  $x$  is a philosopher are such that  $x$  is rich'.<sup>17</sup>

[13] [Few  $x$ :  $x$  is a philosopher]( $x$  is rich).

To formulate the suggestion that 'that' functions as a quantifier word, rather than a genuine singular referring term, we first regiment English sentences of the form 'That is  $F$ ' and 'That  $F$  is  $G$ ' into English\* as '[That  $x$ ]( $x$  is  $F$ )' and '[That  $x$ :  $x$  is  $F$ ]( $x$  is  $G$ )', respectively.

In order to provide a semantics for demonstrative sentences in English\*, we need to choose a framework in which to articulate our various semantic theses. We will adopt a truth-theoretic approach to giving semantics for natural languages pioneered by Davidson.<sup>18</sup> The theories of complex demonstratives we will be discussing throughout this paper, including the one we will endorse in the next section, do not depend in any way, so far as we can tell, on the truth-theoretic framework we are adopting. However, once we adopt a truth-theoretic approach to the semantics of demonstratives, and also opt to treat demonstrative expressions as quantifiers, then we must identify a structure to be *used* in the metalanguage which when applied to functions assigning objects to variables mimics the demonstrative expression *mentioned* in object language sentences for which we are providing satisfaction conditions. To this end, we will first indicate the context relativity of the English\* 'that' by introducing in our metalanguage the term 'that<sub>[s,t]</sub>', whose relativization to speaker,  $s$ , and time,  $t$ , is indicated by the subscripted variables. A first proposed truth-theoretic treatment, then, of 'that' as a quantifier word (couched in a metalanguage which is English\* as well), is [14],

[14] For all functions  $f$ ,  $f$  sat<sub>[s,t]</sub> '[That  $x$ ]( $x$  is  $F$ )' iff *that*<sub>[s,t]</sub> ' $x$ '-variant<sup>19</sup>  $f'$  of  $f$  sat<sub>[s,t]</sub> ' $x$  is  $F$ ', where ' $f$ ' ranges over functions that assign an object to each variable. 'Sat<sub>[s,t]</sub>' is read as 'satisfy(ies) as potentially used by  $s$  at  $t$  in English\*'.<sup>20</sup> As a notational convenience, we suppress universal quantifiers over speakers and times; they will be understood to take wide scope over any other quantifier. The relativization to speaker and time is cashed out in terms of the speaker's

demonstrative<sup>21</sup> intentions, and, in particular, those which determine which object, if any, the predicates are to be evaluated with respect to. Thus, we might read 'that<sub>[t,s]</sub> "x"-variant f' of f' as 'that "x"-variant f' of f demonstrated by s at t'.

Two difficulties are immediately apparent for the proposal in [14]. The first difficulty arises because demonstratives are evaluated relative to demonstrative intentions. Therefore, we cannot perform semantic ascent in the truth theory in the way we normally do for quantifiers. This is because an instantiation of the right hand side of [14] is true only if *functions* are demonstrated by the speaker at the time. But speakers don't typically use demonstratives to demonstrate functions. An utterance of 'That is a brown horse', e.g., does *not* typically involve any demonstrative reference to a function mapping variables to objects. Thus, [14] will render false most if not all uses of sentences with demonstratives, and, hence, render false many uses of sentences with demonstratives which are in fact true. One might try to trace the source of this difficulty to our choice of using a truth-theory in which to articulate the thesis that demonstrative expressions are quantifiers; the same cannot be said for the next difficulty.

The second difficulty with the proposal framed in [14] lies with the demonstrative on its right hand side. Since we seek a satisfaction clause which does not express different propositions on different occasions of use, our truth theory, and hence [14], cannot employ context sensitive expressions. To do so would be to prevent different theorists from expressing the same theory. But if the demonstrative on the right hand side of [14] means the same as its object language 'that', then we have failed to produce a context *independent* specification of the satisfaction conditions of object language demonstrative sentences. (Notice that treating it as a context sensitive term would also leave it open that the theorist gives incorrect truth conditions, since what the metalanguage term picks out will depend on what the theorist's intentions are, and not those of a speaker to whom the theorem is instantiated.)

To get around this difficulty we need to introduce in the metalanguage a context *insensitive* quantifier word appropriately relativized to a speaker and time, that is, we must provide a quantificational paraphrase of 'that' which avoids using it (or a translation) in specifying satisfaction conditions for sentences with demonstratives. This is in effect the approach adopted by a number of authors, who have suggested that demonstratives are equivalent to a specialized

definite description.<sup>22</sup> They assume that sentences with demonstratives can be paraphrased into sentences with quantifiers. So, their aim is to construct a quantifier expression in the metalanguage which functions like a demonstrative to serve as its paraphrase, thereby avoiding the pitfalls of treating 'that', as in [14], as itself a quantifier word *used* in the metalanguage in giving recursive satisfaction conditions, as is customary for 'all', 'some', 'the', 'few', etc.<sup>23</sup>

The most natural suggestion is to treat 'that' as equivalent (semantically) to a 'the object actually now demonstrated by me'. This ensures that the definite description has intuitively the right denotation when a speaker uses a demonstrative successfully, i.e., the object the speaker then demonstrates. Thus, a truth theory for English\*, with obvious axioms, would issue in a theorem like [15].

[15] '[That x](x is G)' is true<sub>[t,s]</sub> iff *the* x actually<sup>24</sup> demonstrated by s at t is G.

Complex demonstratives are then handled by treating the nominal as an addition to the restriction on the definite article.

This proposal has the virtue of clearly delivering the right truth values for sentences in which simple and complex demonstratives are successfully used. This is not surprising, since the definite description chosen to paraphrase the demonstrative was designed to pick out its referent when used successfully. But this isn't enough for it to deliver the right semantic account of demonstrative expressions, whose semantic properties differ in several important ways from the proposed paraphrases. This can be illustrated in a number of ways. The key to understanding these objections is to recognize that this account is asking us to take seriously the idea that a language like English which has demonstrative expressions can be paraphrased in a language without demonstrative expressions. By so doing, the account will (i) fail to account for the fact that there are vacuous uses of demonstratives, (ii) will saddle our uses of demonstratives with scope readings they don't have, and (iii) with entailments they don't have. In short, the account will fail to correctly interpret English demonstratives.

(i) A singular term is vacuous if it has no referent. An utterance of a sentence containing a vacuous term fails to have a truth value. Suppose that MacBeth, hallucinating and pointing to the empty air before him, had asserted [16].

[16] This is a dagger I see before me.

Intuitively, MacBeth would have failed to secure any object for him to go on to say something about. He has not said something false, as the description paraphrase approach would require, but has failed to say anything true or false at all. The culprit is clearly MacBeth's use of 'this', to which no referent can be assigned. This point about demonstratives, that they can have vacuous uses, is one that Kaplan has emphasized repeatedly, and which their treatment as quantifier words cannot accommodate.

This point extends straightforwardly to the description paraphrase approach to complex demonstratives. Someone who gestures to his right saying, 'That philosopher is a gymnosophist', when nothing is to his right, has not said something false, but has failed to say anything at all. The description paraphrase approach would require him to have said something false about *himself*. But this is just as counterintuitive as in the case of simple demonstratives. That the speaker, in failing to demonstrate anything in order to say of it that it is a gymnosophist, fails to say anything truth evaluable, is shown clearly enough by the fact that if he comes to see that his demonstrative intentions failed to pick out an object, he will not insist that he has said something, albeit false, but regroup. He would not say, even if he is prone to falsehood, 'Oops, wrong again!'. He would not pay off a bet that the next thing he says will be false if he had said, 'That philosopher is a gymnosophist', but failed to demonstrate anything—he would count himself lucky and try again.

Possible vacuity is a distinctive feature of singular terms. Quantifiers have no vacuous uses, since every quantified sentence (other linguistic infelicities aside, such as vagueness or incidental demonstratives elsewhere in the sentence) has a truth value, even if, like 'The first bud of April is the herald of spring', it fails to secure an object about which one can say something. Quantifiers do not themselves involve any reference to individuals, so we can say all sorts of things using them without having any particular things in mind. This is in large part where their utility lies.

(ii) 'that' does not permit the same scope ambiguities as its alleged paraphrase. [17], for example, has only one reading,

[17] John believes that that is thin,  
whereas replacing the demonstrative 'that' with 'the object now demonstrated by me' in [17] allows the non-equivalent readings [18] and [19].

[18] John believes [the object now demonstrated by me is thin].

[19] The object now demonstrated by me is such that [John believes it is thin].

In addition, if an utterance of [19] is true at *t*, it follows that something at *t* is such that John believes it to be thin. No such inference is warranted from the truth of [18], where the description has narrow scope, as used on an occasion, since [18] could be true even if on the occasion on which someone uses it he fails to demonstrate any object.<sup>25</sup>

Neale<sup>26</sup> suggests that such scope data could be explained on the assumption that 'that', construed as a definite description, always takes wide scope.<sup>27</sup> What is right is that *if* 'that' functioned like a definite description, then the data we just surveyed would compel us to treat 'that' as always taking wide scope. But we would have no explanation for why this should be so. In this sense, Schiffer's and Neale's restriction seems *ad hoc*. So the data constitute a *prima facie* objection to treating simple demonstratives as quantifiers. On the other hand, treating demonstratives as singular referring terms readily explains why if someone truly utters [17], then [19] (taken relative to the same contextual parameters) is true, where the description has wide scope, and why [17] entails that someone was believed by John to be thin at that time.

(iii) Finally, the description approach is saddled with entailments the demonstrative sentences it analyzes don't have. If John said, 'That is thin' (or 'That man is thin'), then one could, if the description approach were correct, truly say, 'John said something which entails that something was demonstrated by him'. But while it *may* be true that John demonstrated something, and, if he was sincere, that he intended to, nothing he *said* (or expressed) entails that he did, anymore than anything he *said* (or expressed) entails that he was *speaking English*.

The description approach is a form of mimicry, piggy-backing on an independent means for securing a referent for predication as a way of imitating the behavior of demonstratives. It attempts to treat 'that' as a quantifier by treating the means by which its referent is determined, namely, by demonstration, as a general condition to be met for singling out an object by way of a definite description. But the fact that it must appeal to an independent means of securing an object for predication shows that it is a counterfeit of the hard coin of demonstration. The same work is being done twice over, but less well the second time around. The act of demonstration itself secures the object for predication. It would be pointless to go on to try to secure it a second time by means of the matrix 'x is demonstrated by s at t'.

The case against treating demonstrative expressions as quantifiers seems decisive. There remains the question of how in the light of this are we to explain the analogies between complex demonstratives and quantifier expressions consistently with seeing demonstratives as genuine singular referring terms, and, in particular, how to give a semantics for sentences containing complex demonstratives compatible with this constraint. It is to this task we now turn.

#### **4 Semantics for complex demonstratives<sup>28</sup>**

In light of the difficulties encountered in treating 'that' as a quantifier word, it might seem prudent to reconsider the suggestion that complex demonstratives function as singular referring terms, and that the nominal in the complex demonstrative does not contribute to the truth conditions of the sentence. This might be recommended by the observation that when we use sentences of the form 'That F is G' we are clearly most interested in saying of some demonstrated object that it is G. In fact, it seems that we can succeed in demonstrating an object in order to say it is G, using 'That F is G', even when it fails to be F (*contra* Kaplan, et. al.). For example, if someone says, pointing to a white horse, 'That unicorn is white', it seems to make perfect sense to say in response, 'That's white alright, but it's not a unicorn'. This indicates that we think the speaker has succeeded in demonstrating something, which we in turn demonstrate, even though it is not a unicorn. The nominal, it might be suggested, plays only a pragmatic role in helping an auditor to determine which object the speaker is demonstrating to say of it that it is G. If the nominal played a semantic role as well, surely whether an object is demonstrated would depend on its being F; and, in addition, we have an explanation for the role 'F' plays that does not depend on its being semantic.

However, while an adequate account should explain the possibility of demonstrating an object when uttering a sentence of the form 'That F is G' which fails to be F, and should accommodate the idea that the nominal plays a role in helping an auditor to determine what object is being referred to, the suggestion that the nominal plays no semantic role seems incompatible with the data surveyed in §2. Such a view would require us to deny that expressions of the form, Det + Nominal + Predicate, comprise a homogeneous semantic class, because this form functions quite differently depending on whether Det is a quantifier word or a demonstrative. Where expressions seem to be constructed in identical ways out of terms in identical categories, there is a presumption that a compositional semantic theory should exhibit them as sharing similar semantic

structures.

Furthermore, someone who advocates that the nominal plays no semantic role would be committed to saying that all sentences of the form 'That F is G', no matter what substitutes for 'F' (for some fixed replacement for 'G'), have the same (relativized) truth conditions! This view is incompatible with semantic entailment relations into which such sentences enter. As noted in §2, for any determiner with existential import,  $\text{Det}_\exists$ , ' $\text{Det}_\exists$  F is(are) G' semantically entails 'Some F are G', and, hence, 'There are some F' (fixing contextual variables). In fact, it seems we can infer either of 'That clown is funny' and 'That is a funny clown' from the other, when the demonstrative picks out the same thing.<sup>29</sup> Similarly, 'All Fs are Gs' entails 'That F is G', e.g., 'All aviators wear sunglasses; therefore, that aviator wears sunglasses' (again, fixing contextual parameters). And while someone could say, without fear of formal contradiction, 'That is not a clown', if he says 'That clown is not a clown', he could only be understood intelligibly if we took him to intend 'clown' in different senses in the two occurrences. Likewise, we will accept as true such necessitated conditionals as, 'Necessarily, if it was that clown in the aviator sunglasses who won the prize, then someone in aviator sunglasses won the prize', which requires us to think of the nominal of the complex demonstrative contributing to the truth conditions of the sentence in the antecedent.<sup>30</sup>

Furthermore, again appealing to data presented in §2, the nominal can interact with other elements in the sentence in which the complex demonstrative appears. One can quantify into the nominal, and terms in the sentence can be anaphoric on quantifier expressions in the nominal. It seems not to be an option, then, to treat the nominal as pleonastic, or even to restrict its semantic role to placing a necessary condition on securing a referent for predication. We must take seriously the parallel between the treatment of sentences of the form 'That F is G' and those of the form 'Q F is/are G', where 'Q' is replaced by a quantifier word.

In light of these considerations and our arguments against treating 'that' as a quantifier word, we propose the following desiderata on any adequate account of complex demonstratives.

- (i) The account must exhibit 'that' as a singular referring term and not as a quantifier word.
- (ii) The account must show how 'that' can be used in 'that F' to demonstrate an object even though the object demonstrated is not F.

- (iii) The account must explain how the nominal in 'that F' can play a pragmatic role in helping an auditor to determine what the speaker intends to be referring to.
- (iv) The account must exhibit the nominal 'F' as contributing to the truth conditions of a sentence of the form 'That F is G', and in particular the account should explain the entailment relations into which 'That F is G' may enter.
- (v) The account must interpret sentences of the form 'That F is G' in a way that exhibits their structure as parallel to that of sentences of the form 'Q F are G', where 'Q' is replaced by a quantifier expression, and, in particular, the account must enable us to explain how the nominal in complex demonstratives can interact with other elements in a sentence in the same way as the nominal in restricted quantifier expressions.

In effect, (as remarked in note 28) we will meet desiderata (i) and (ii) by assigning 'that' a reference clause (thereby treating it as a singular term) and then by providing a recursion clause for sentences of the form 'That F is G' in which the semantic contribution of 'that' is exhausted by its reference clause. This will meet (ii) because the reference clause will provide conditions for 'that' picking out an object independently of any nominal it is concatenated with to form a complex demonstrative. (This terminology of course is misleading if we are right.) However, as we have seen, there appears to be a tension between (i)-(ii) and (iv)-(v). In what follows, we will reconcile these four desiderata with materials needed to satisfy the pragmatic desideratum (iii).

We rejected semantically interpreting 'that' in a way exactly parallel to how we standardly interpret quantifiers in sentences of the form 'Q F are G' because 'that' is a singular term. On the other hand, we apparently want whatever object 'that' picks out to be, as it were, fed into the construction 'x such that x is F is such that x is G' in a way that parallels restricted quantification. That is, we want to represent the object which is the referent of 'that' as used by the speaker as fed into this construction in a way parallel to the way quantifiers feed objects to this construction. But to do this in full generality within a truth-theory, we must invoke satisfaction, because nominals and predicates are both productive categories, i.e., complex ones can be built up out of simpler ones by the usual recursive devices. Because we must interpret constructions of the form 'That F is G' recursively in terms of how we interpret 'F' and 'is G', we will continue to represent 'That F is G' in English\* as '[That x: x is F](x is G)'. What we want, then, is for a function  $f$  to



satisfy '[That x: x is F](x is G)' iff a function  $f'$  which differs from  $f$  at most in that  $f'$  assigns to 'x' what is demonstrated by the speaker in using 'that' *and* which satisfies 'x is F' is such that it *also* satisfies 'x is G'. There will in fact be only one such function because of the requirement that it assign to 'x' what 'that' refers to. Exploiting this fact, we can write out our candidate satisfaction clause as in [20].

[20] For all functions  $f$ ,  $f \text{ sat}_{[a,i]}$  '[That x: x is F](x is G)' iff [the  $f'$ :  $f'$  differs from  $f$  at most in that  $f'('x') = \text{Ref}_{[a,i]}('that')$  and  $f' \text{ sat}_{[a,i]}$  'x is F']( $f' \text{ sat}_{[a,i]}$  'x is G').<sup>31</sup>

[20], as a semantic proposal for how to interpret complex demonstratives, meets desiderata (iv) and (v) compatibly with (i) and (ii). Our formulation of [20] is, in fact, *essentially a more precise rewording of our desiderata*. By specifying the semantic contribution of its simple demonstrative constituent using a reference clause, we continue to treat 'that' as a singular referring term. However, at the same time we capture the semantic contribution of its nominal to the truth conditions of the sentence in a way that parallels the standard treatment of restricted quantifiers. In effect, we treat English sentences of the form 'That F is G' as sharing interpretive truth conditions with English\* sentences of the form '[The x: x = that and x is F](x is G)'.<sup>32</sup>

Our desiderata have led us to postulate that sentences of the form 'That F is G' are semantically equivalent to *restricted existentially quantified sentences*, the restrictive clause of which contains a singular referring term, to wit, a demonstrative. This view neatly handles all of the assorted data we have discussed.

It explains the similarity in form between 'That F is G' and 'Q F are G' by treating the former as having the logical form of '[Qx:  $\phi(x, \text{that})$ ](x is G)', where ' $\phi(x, \text{that})$ ' represents a complex predicate that contains a demonstrative in an argument place. It thereby exhibits 'that' as a genuine singular referring term whose contribution to a sentence does not depend on the nominal to which it is conjoined. It explains why 'That F is G' is materially equivalent to 'That is F and G', since '[The x: x = that and x is F](x is G)' semantically implies 'Something is identical with that and it is F and G'. And it explains how, despite the nominal not semantically constraining the referent of 'that' as used by the speaker, it nonetheless enters into the sentence's truth conditions. In the case of an utterance of 'That unicorn is white', we can explain how someone can demonstrate something even though there are no unicorns, and why the utterance is false even

when someone successfully demonstrates something white. We will also be able to explain (see §5) why the nominal plays a pragmatic role in helping an auditor to determine which object the speaker intends to be demonstrating. Thus, we can accommodate all the intuitions that pull people in different directions about the semantics of complex demonstratives.

The account achieves its explanatory goals by foregoing certain traditional assumptions about so-called complex demonstratives, perhaps the chief of which is that expressions of the form 'That F' are themselves singular terms *if* 'that' is a singular term. From the perspective afforded by our account, wanting to treat 'that' as a quantifier word, or to treat the nominal 'F' in 'That F is G' as semantically inert, or at least not predicated of the object picked out, results from failing to see that combining a demonstrative with a nominal is itself a bit of semantically significant syntax, to be interpreted as a restricted existential quantifier in which a demonstrative appears in the nominal restriction.<sup>33</sup>

The suggestion that some noun phrases function as quantified noun phrases, even though they lack an explicit quantifier word, should be familiar. Sentences such as 'Whales are mammals' and 'Men are wicked' are treated as equivalent to 'All whales are mammals' and 'All men are wicked', though they contain no explicit quantifier word.<sup>34</sup> Similarly, genitive forms of proper names and indexicals that combine with nominals to form complex noun phrases, as in 'John's beagle' and 'His hat', are standardly treated as equivalent to descriptions in which the referring terms are treated as part of the predicate restriction on the article. It should not be so surprising to find a similar phenomenon with complex noun phrases formed from concatenating demonstratives with nominals. Indeed, with these parallels in mind, our proposal seems like the obvious thing to say about complex demonstratives.

It is certainly suggestive that, in many other languages, demonstratives are used in noun phrases only in conjunction with a definite or indefinite article, and are often grammatically adjectives in noun phrases rather than determiners. In Hungarian, for example, 'ez' and 'az' function by themselves as demonstratives, but when they head noun phrases, a following article is mandatory: 'az a lecke'/'This [the] lesson'. In Spanish, 'aquel hombre' ('that man') is equivalent to 'el aquel hombre' ('the that man'). In Haitian Creole, demonstratives followed by nominals must be preceded by a determiner. In Welsh and Dehu, the pattern is, article + noun +

demonstrative, and the demonstrative functions grammatically as an adjective.<sup>35</sup> In Greek, the usual pattern is demonstrative + definite article + noun. In Hebrew, the most common pattern is 'the man the this', as in 'ha- ish ha- ze'; just as 'ha- ish ha- tov', literally 'the-man the-good', is rendered as 'the good man', so 'ha- ish ha- tov ha- ze', literally 'the-man the-good the-this', is rendered as 'this good man'. In Mandingo, a mande language spoken in West Africa, a tonal D, which is a determiner, is always present when a demonstrative is adjoined to a noun: this woman = muso H nin. Here 'muso' means 'wife', 'H' is the high tone D, and 'nin' is a demonstrative; but when 'nin' is used by itself, it is never used with the tonal D.<sup>36</sup> A common pattern in Polynesian languages is article + noun + demonstrative. These data from other languages suggest also that we should not be surprised by the idea that complex demonstratives are, semantically, quantified noun phrases containing a demonstrative in the predicate restriction. However, while these data from other languages is suggestive, the case in the end, of course, rests on the semantic data we have assembled for English.

It is interesting to note that when we turn to plural demonstratives, such as 'these' and 'those', there appears to be an equivalence between sentences of the form 'These F's are G's' and 'All these F's are G's', which suggests that the former is an abbreviated syntactical device for expressing the same thing as the latter. The natural extension of our account to 'These F's are G's', is to say that all things that are among these and are F are also G, which is also the most natural way to interpret 'All these F's are G's'.

In the next two sections we will defend our thesis from some *prima facie* objections.

## 5 Quantifying In

Quantification into the nominals of complex demonstratives, while supplying the data for semanticists who deny they are singular terms, also present some *prima facie* obstacles to their thesis. The problem is that, though we can naturally quantify *into* complex noun phrases, as in [21],

[21] *Every man* loves the woman who is *his* mother,

this can seem quite strange in the case of some complex demonstratives. There are cases, as we have noted, in which it seems acceptable to quantify into complex demonstratives. Recall [4]-[5].

[4] Someone loathes that man to *his* right.<sup>37</sup>

[5] The man in the white hat hates that man addressing *him*.

This is part of the evidence we advanced for treating complex demonstratives as quantified noun phrases. However, there are other cases in which it seems decidedly odd, as in [22] (where we imagine the speaker pointing to some particular woman).

[22] ?*Every man* loves that woman who is *his* mother.<sup>38</sup>

Some authors have gone as far as to suggest that sentences like [22] are suspect,<sup>39</sup> perhaps even semantically incoherent. But if our treatment is correct, [22] should be semantically in order, because it is equivalent to the perfectly well-formed English\* [23],

[23] [For every y: y is a man][the x: x = *that* and x is a woman who is the mother of y](y loves x).

According to us, quantification into 'that F' is just quantification into a quantified noun phrase. So, we must defend the view that whatever may seem odd about [22] is not due to any incoherence in its construction. And in fact we believe that whatever oddness surrounds utterances of sentences like [22] is due to solely to the difficulty in imagining circumstances in which it would be reasonable to assert it.

As Taylor<sup>40</sup> notes, it is not easy to see what could prevent the inference from [24] to [25] by existential generalization.

[24] James is marrying that woman he is kissing.

[25] Someone is marrying that woman he is kissing.

Clearly, the sentential matrix 'x is marrying that woman x is kissing' can be satisfied by an object; thus, we can surely say that some object satisfies it; or, in the material mode, something is such that it is marrying that woman it is kissing. Our account makes sense of this possibility (and it does so without the desperate expedient of treating demonstratives as quantifier words). Again, consider [26].

[26] Mary loves that man kissing Judy.

'that' is being used as a demonstrative in [26]. From [26], [27] surely follows.

[27] Mary loves that man kissing someone.

Indeed, one could imagine drawing attention coyly to the man one is demonstrating by using [27] rather than [26]. But isn't [27] equivalent to [28]?

[28] [Some x](Mary loves that man kissing x)

Moreover, it is easy enough to think up perfectly normal sentences in which it is acceptable to bind variables inside a complex demonstrative by a universal quantifier from outside. Our earlier [6] provides an example:

[6] *Each woman in this room* admires that man whom *she* sees at the podium.

It is easy to see that there can be demonstrative uses of 'that' in [6]. For example, there may be two men at the podium and the speaker may be pointing at one of them. In such circumstances, [6] does not seem at all odd, and in the imagined circumstances it is clear that one could not intelligibly reinterpret 'that' as a definite article. A true assertion of [6] in the imagined circumstances would clearly involve a demonstration, although a universal quantifier binds a variable inside the complex demonstrative. No puzzle arises about its assertion because it is clear that there is a single man whom they all admire. So, there can't be anything semantically amiss with quantifying into complex demonstratives. Any oddity with [22], then, cannot be due to the fact that a variable in the complex demonstrative is bound by a quantifier outside it, but must attach to some pragmatic infelicity accompanying its typical utterances.<sup>41</sup> And it is not difficult to see why it would be odd to assert [22], given its semantics, for unless we are all very much mistaken about our ancestry, [22], interpreted literally, is absurdly false; there are no ordinary circumstances in which it would make good conversational sense to assert it.

More generally, part of the usefulness of the construction 'that F' is to help draw an auditor's attention to his interlocutor's belief that the object he is demonstrating falls under 'F' in a way that renders the property it expresses salient for tracking the speaker's demonstrative intentions. Our account neatly explains, on the basis of the semantics of 'That F is G', why this inference is reasonable, since it requires 'F' to be true of the demonstrated object. Thus, our account handily explains the intuition that the nominal *pragmatically* helps to determine the demonstrated object. This utility would explain why someone asserts 'That F is G' in preference to 'That is a F and G' or simply 'That is G', when what is most important is that the object demonstrated is G. (Thus, we satisfy desideratum (iii).)

This utility is often lost when the nominal contains a variable bound by a quantifier external to it. Quantifiers normally are not in the business of singling out particular individuals, and so a

relativized nominal will often fail to specify useful identifying information. Against the standard practice, quantifying into complex demonstratives will often seem odd, as it does. But that is because using such constructions normally issues in odd performances, and not because the result is semantically incoherent. This pragmatic role the nominal plays may also explain why nominals formed with a relative clause in past tense can seem not entirely natural, as in [29].

[29] ?Mary loves that man *who kissed Judy*.

This relative clause would often fail to provide useful information about the speaker's demonstrative intentions. For one cannot survey the immediate environment to see what satisfies 'man who kissed Judy' for help in identifying the object the speaker intends to be demonstrating, since no such event occurs at the time of utterance. (If there is enough discourse context to make clear what the speaker has in mind, however, a use of [29] may seem unproblematic.) Contrast [29] with [26], or [30], utterances of which are clearly unexceptional.

[30] Mary loves that man who is kissing Judy.

## 6 Other Challenges

Richard, in an interesting paper, defends a thesis according to which complex demonstratives are what he calls "articulated" singular terms, which requires that the nominal concatenated with the demonstrative contributes semantically to sentences in which it occurs.<sup>42</sup> In discussing the viability of his treatment, he offers [31] as a potential difficulty,<sup>43</sup> since, "sophisticated informants tend not to hear any reading of this on which it is true."

[31] Necessarily, if that dog with the blue collar exists, then it has a collar.

According to us, complex demonstratives are not singular terms, but like Richard we have their nominals contributing semantically to the sentences in which the complex demonstrative occurs. So, if [31] poses a difficulty for Richard's view, it may also pose a difficulty for our view that they are quantified noun phrases. However, the problem is particularly acute for Richard, for if one thinks 'that dog with the blue collar' is itself a singular term, then the pronoun 'it' in the consequent of [31] would have to be read as a pronoun of laziness, whose anaphor would be the singular term in the antecedent, and thus [31] would be semantically equivalent to [32],

[32] Necessarily, if [that dog with the blue collar]<sub>1</sub> exists, then [that dog with the blue collar]<sub>1</sub> has a collar,

where subscripts indicate the cross reference. [32], however, far from admitting only of a false reading, admits only of a true reading on Richard's account (on the assumption that there is some such dog).

If we are right, 'that dog with the blue collar' is a restricted existential quantifier (effectively a definite description). This provides us with more resources for dealing with intuitions about [31] than the view that complex demonstratives are articulated singular terms. For if complex demonstratives are restricted quantifier expressions, then the pronoun in the consequent of [31] could be a variable bound by that restricted quantifier, which may take either wide or narrow scope. The wide scope reading is represented in [33].

[33] [The  $x$ :  $x$  = that and  $x$  is a dog with the blue collar](necessarily if  $x$  exists, then  $x$  has a collar).

[33] is clearly false, so our view can provide a reading of [31] on which it is false. There remain the questions whether there is a narrow scope reading, and, if so, how can we account for the dominance of the wide scope reading. First, we will motivate a narrow scope reading of [31], and then go on to explain why its dominant reading assigns 'That dog with the blue collar' wide scope over 'necessarily'.

While the most natural reading of an unembedded use of [31] is one on which it is false, this is not so for all *embedded* uses. In [34], we naturally read the embedded clause as true.

[34] No one doubts that necessarily if that dog with the blue collar exists, then it has a collar. This is generated by our trying to make sense of someone asserting [34], for clearly it would be surprising to assert it on its wide scope reading, but perfectly sensible on its narrow scope reading. This shows there are two readings of [31], both of which our account accommodates.

We seem also able to generate a narrow scope reading of unembedded sentences of the same general form. Thus, imagine, e.g., we are discussing a rather reclusive colleague reputed to have been working for years on a large manuscript whose eventual appearance will justify the apparently fallow period he has fallen into since being granted tenure. One of us tells the other, expressing some skepticism about the eventual appearance the long-awaited masterpiece,

[35] Necessarily, if that big manuscript Tom has been working on for years exists, then it's a BIG manuscript!

Here we are not inclined to suppose that [35] is falsely uttered. Alternatively, imagine someone waking up after a night of excessive drinking, who, upon taking a cursory glance around, remarks with some circumspection,

[36] Necessarily, if these cockroaches covering my body exist, then my body is covered with loathsome insects.

[36] would be false on its wide scope reading. Yet it seems clear that if our subject is not merely hallucinating, but has rather unhappily fallen asleep in a cockroach den, what he has said is true. But this is possible only if [36] can take a narrow scope reading. If this is right, then the most natural reading for [31] can't be forced by its proper semantic account, and we must account for its naturalness on broadly pragmatic grounds. (It is slightly easier to get the narrow scope reading when the consequent is not a trivial logical entailment of the predicate restriction in the antecedent, which is what we should expect if the pragmatic account is correct.) These observations are bolstered by the fact that complex demonstratives in the antecedents of other necessitated conditionals clearly do take narrow scope, as in [37].

[37] Necessarily, if that dog is named 'Spot', then some dog is named 'Spot'.

[37] seems clearly true, but would not be if 'that dog' takes a wide scope reading.

The remaining question is whether our account of the semantics of [31] also grounds a plausible pragmatic account of why it naturally receives a wide scope reading.

We assume, following Grice,<sup>44</sup> that engaging in a talk-exchange is a rational cooperative activity governed by the Cooperative Principle:

Make your conversational contribution such as is required, at the stage at which it occurs, by the accepted purpose or direction of the talk exchange in which you are engaged (p. 26), and, more specifically, by certain general maxims underwritten by the Cooperative Principle. Of particular interest for our purposes will be the maxim to make one's contribution as informative as is required given the purpose of the talk exchange (Grice's maxim of 'Quantity') and the maxim to say only what one believes to be true or for which one has evidence (Grice's maxim of 'Quality'). In interpreting others, maxims will often appear to come into conflict. One may have to choose between interpreting someone so as to make his contribution uninformative, or interpreting him as intending to convey something one believes to be false. To see him as in accord with the



Cooperative Principle, one must therefore see him either as failing to realize that what he has said is uninformative, or as having a false belief. If it is less plausible to suppose he fails to realize that he has said something uninformative than that he has a false belief, then on the assumption that he is obeying the Cooperative Principle, one will interpret him as saying something false rather than uninformative. If someone, on reading an account of an atrocity committed during a military campaign, remarks, 'War is war', one will not interpret him as intending to convey only the literal content of what is said, because it would be recognized by him to be completely uninformative, and, thus, even if one believes that the only other likely interpretation, namely, that it is in the nature of war that atrocities occur, is false, it will be the preferred interpretation. Here one chooses to attribute to one's interlocutor a false belief in preference to seeing him as confusedly thinking that 'War is war' interpreted literally is informative.

In general, when there is a conflict between seeing one's interlocutor as confused about the informativeness of something very obviously uninformative, particularly on semantic grounds any competent speaker would grasp, and having a false belief, there will be a strong pull to interpret the speaker as having a false belief and saying something false on the assumption that he is obeying the Cooperative Principle.

We can exploit this in explaining, on our account of the semantic role of complex demonstratives, why it is difficult to get a narrow scope reading of [31], given explicitly in [38].

[38] Necessarily, [the  $x$ :  $x$  is that and  $x$  is a dog with the blue collar](if  $x$  exists, then  $x$  has a collar).

A literal utterance of [38] would typically be quite strange, since, on the assumption that on the occasion in question the speaker demonstrates a dog with the blue collar (as the speaker himself would suppose), the restricted quantifier guarantees both that the antecedent of the conditional and the consequent are true, and *this is something anyone competent in the use of these expressions would know implicitly*. A sincere literal utterance of [38] which succeeds in picking out an appropriate object would be recognized by any competent speaker to be extremely uninformative. Therefore, reading an utterance of [31] as [38] would commit one typically to seeing one's interlocutor as failing to obey the maxim of quantity, and *prima facie* as failing to obey the Cooperative Principle. If we are right, however, there is another reading of [31] on

which the quantified noun phrase takes wide scope, namely, [33]. [33] seems false, maybe even obviously false, but as we have observed, when there is a choice between an interpretation which is, on semantic grounds, uninformative and one which is false but potentially informative, the latter is to be preferred. We therefore explain the reaction to an imagined utterance of [31] as false as a matter of choosing an interpretation which seems as more plausible that the speaker is confused or mistaken about the truth of the informative reading than that he fails to see that what he says is uninformative, which would convict him of semantic incompetence (better the frying pan than the fire). This also explains the point noted above that we find a narrow scope reading of such sentences easier when the consequent is not a trivial logical entailment of the predicate restriction in the antecedent, as with [36].

This explanation is further supported by the observation that we need in any case a general pragmatic account for the natural readings of sentences like [39].

[39] Necessarily, if the dog with the blue collar exists, then it has a collar.

On its most natural reading, [39] is false. But since 'the dog with the blue collar' is a quantifier, it has two readings. Why is its wide scope reading more natural? Clearly, it is because the narrow scope reading is uninformative, and would therefore make an extremely odd contribution to a talk-exchange on the assumption the speaker is competent in English. It is also odd to suppose the speaker won't recognize the falsity of the wide scope reading, but this is more plausible than the alternative, and so we naturally give [39] the wide scope reading. The same phenomenon occurs with other restricted quantifier expressions. [40] is most naturally interpreted as entailing that married men are necessarily married, i.e., [40] is most naturally read with 'most married men' taking wide scope over 'necessarily'.

[40] Necessarily, if most married men exist, then they are married.

Again, we have a ready explanation, namely, it is slightly more plausible to suppose someone fails to see the falsity of the wide scope reading than that he fails to see how uninformative its narrow scope reading is. The phenomenon identified by Richard, then, is not restricted to complex demonstratives, but also occurs with quantified noun phrases which clearly allow two readings. The pragmatic explanation of the dominance of one reading for these cases is just the explanation we have invoked for complex demonstratives.

We turn now to another kind of example which raises a challenge to our account.

Braun<sup>45</sup> argues against what he calls the rigidified descriptivist view, the view that 'That F is G' is equivalent to 'That is actually an F and is G', because it cannot accommodate our intuitions about the use of complex demonstratives in complement clauses of attitude reports. An advantage of our view over the rigidified descriptivist view is that our position has the resources to explain intuitions about examples which the rigidified descriptivist view is unable to accommodate because it treats sentences of the form 'That F is G' as subject-predicate sentences with a singular term as subject. One example will serve to illustrate the difficulty Braun raises for the rigidified descriptivist view.

In the course of a dinner at a fine restaurant, Tom says to George, who is waiting on him.

[41] You are a good waiter.

Unbeknownst to Tom, George is wearing white sneakers. Another patron, Mary, who has overheard Tom assert [41], has noticed that George is wearing white sneakers, and, addressing her friends, says:

[42] Tom believes that that man wearing white sneakers is a good waiter.

According to Braun, "Mary's attribution could be perfectly true, in the context we are imagining" (p. 206). Braun's objection to the rigidified descriptivist view is that since it must represent [42] as [43], it must represent [42] as false.

[43] Tom believes that that is actually a man wearing white sneakers and is a good waiter. A similar objection *might* be leveled against our position, since it represents 'that man wearing white sneakers' as 'the x such that x = that and x is a man wearing white sneakers', and Tom clearly need not believe that the thing which is a man wearing white sneakers is also a good waiter. However, unlike the rigidified descriptivist view, our position clearly has the resources to accommodate these cases. By virtue of treating 'that man wearing white sneakers' as a quantified noun phrase, we can invoke wide and narrow scope readings of [42], and, in the imagined context, in order to make good sense of what Mary has said, we would favor the wide scope reading, i.e., read [42] as [44].

[44] [The x: x = that and x is a man wearing white sneakers](Tom believes x is a good waiter).

This is exactly what we would have to say to account for how Mary could say something true, as she very well might, by asserting [45] in the same context:

[45] Tom believes that *the* man wearing white sneakers over there is a good waiter.

It is, of course, clear that we can also generate narrow scope readings by suitably changing the context. Thus, suppose that Tom had said to a companion, 'That man wearing white sneakers is a good waiter'. Mary, not quite catching the modifier of 'sneakers', and noticing that the waiter is wearing Nikes, turns to her companion and says, 'Tom believes that that man wearing Nike sneakers is a good waiter'. Mary's companion, whose hearing is somewhat more acute, responds, 'No, he thinks that that man wearing *white* sneakers is a good waiter'. Here the narrow scope reading is at issue, since 'that man wearing Nike sneakers' and 'that man wearing white sneakers' pick out exactly the same object.

Thus, Braun's examples not only do not undermine our account, but provide further support for it by showing that complex demonstratives exhibit the same scope phenomenon that quantified noun phrases do.<sup>46</sup>

James Higginbotham<sup>47</sup> offers an interesting argument against treating expressions of the form 'that F' as quantified noun phrases. He notes that [46] has two readings, [47] and [48]:

[46] John likes the book he read and so does Bill.

[47] John likes the book he read and Bill likes the book he read.

[48] John likes the book he read and Bill likes the book John read too.

But, in contrast, according to Higginbotham, [49] has only the reading [50]:

[49] John likes that book he read and so does Bill.

[50] John likes that book he read and Bill likes the book John read too.

We agree with Higginbotham that in [49] the book Bill likes must be the same one as the one that John likes, but we don't have the strong impression that the completion has to use 'John'.

Consider [51]:

[51] John likes that book he read as does Bill.

It seems there is a reading of [51] on which we suppose it is implied that Bill read that book too. Furthermore, Higginbotham's completion would make the sentence literally false, since while 'John likes that book he read' can be true though John has read many books, 'Bill likes the book

John read too' will be false if John has read more than one book.

We can easily explain on our account why the book Bill likes must be the same as the one John likes and read, and so why there appears not to be the same sort of ambiguity as there is in the case of 'the book he read'. Schematically, the two readings are, [52] and [53]. Since there is only one demonstration in the original, both of [52] and [53] should be understood when instantiated to the complex demonstrative to employ a demonstrative referring to the same thing. So our account would represent the two readings as [54] and [55]. Since the demonstrative requires it to be the same book, no difference in the circumstances in which the two readings would be true emerges.

[52]  $x$  likes NP( $x$ ) and  $y$  likes NP( $y$ )

[53]  $x$  likes NP( $x$ ) and  $y$  likes NP( $x$ )

[54] John likes [the  $y$ :  $y = \text{that}_1$  and  $y$  is a book John read] and Bill likes [the  $z$ :  $z = \text{that}_1$  and  $z$  is a book Bill read]

[55] John likes [the  $y$ :  $y = \text{that}_1$  and  $y$  is a book John read] and Bill likes [the  $z$ :  $z = \text{that}_1$  and  $z$  is a book John read]

Lastly, consider the case where John has been dating several women, and Bill has been dating one of the women John has been dating as well, though also other women. It makes sense to say [56]. On Higginbotham's account, [56] comes out as [57].

[56] John likes that woman [pointing] he is dating and so does Bill.

[57] John likes that woman [pointing] he is dating, and Bill likes the woman John is dating too.

But [56] is true, and its interpretation [57] is false. In addition, it seems that in this case there are two ways of hearing it. Knowing the background story, one way to hear it is as [58]. If, on the other hand, we modify the story so that Bill hasn't been dating any of the women John has been dating, but likes one of them, and this is common knowledge, then the natural reading would be [59].

[58] John likes that woman [pointing] he is dating and so does Bill [like that woman he (Bill) is dating].

[59] John likes that woman [pointing] he is dating and so does Bill [like that

woman he (John) is dating].

In the case of the definite description, Higginbotham thinks that [60] leads to [61] by VP deletion. But we can't see the difference.

[60]  $x$  likes NP( $x$ ) and  $y$  likes NP( $x/y$ ).

[61]  $x$  likes NP( $x$ ) and so does  $y$ .

## 7 Conclusion

One of the most puzzling aspects of demonstratives is their dual role as unstructured singular terms and their use in complex demonstratives. In this paper, we have shown how to reconcile these quite different roles without reducing one to the other, i.e., without, on the one hand, treating all demonstrative constructions as singular terms which contribute only their referent to the truth conditions of sentences in which they occur, and without, on the other, assimilating all uses of demonstratives to quantifiers. The former approach fails to capture the apparent analogies between complex demonstratives and quantified noun phrases, while the latter cannot explain how the nominal in a complex demonstrative can contribute to the truth conditions of its containing sentences or make sense of quantification into the nominal of a complex demonstrative. The key to understanding demonstratives in complex demonstratives is to see the concatenation of a demonstrative with a nominal, 'That F', as itself a form of restricted quantification, namely, as equivalent to '[The  $x$ :  $x$  is that and  $x$  is F]'. Once this identification is made, we can explain all of the puzzling phenomena surrounding complex demonstratives compatibly with treating the demonstrative 'that' as making the same semantic contribution everywhere it occurs. First, the identification enables us to explain why 'That F is G' implies 'Something is F', and, more particularly, why 'That F is G' is materially equivalent to 'That is F and G', as well as the other entailment relations we reviewed. Second, it explains how one can demonstrate something using a sentence of the form 'That F is G' even though what one demonstrates is not F. Third, it explains why we can quantify into 'F' in 'That F is G'. Fourth, it explains also why quantification into some nominals seems strange or infelicitous. Fifth, it explains why 'That F' exhibits scope phenomena. Sixth, it explains the pragmatic helpfulness of the nominal in figuring out what the speaker intends to be demonstrating.

Once one sees that complex demonstratives function like quantified noun phrases whose

restricting predicate contains a demonstrative, the semantic phenomena associated with complex demonstratives fall into an intelligible pattern, and we see that the contribution of the demonstrative itself can be captured completely by a reference clause. An immediate corollary is that complex demonstratives do not hold the key to the mechanism of reference, and that the nominal in the complex plays no special individuating role that might shed light on how we single out objects in thought.

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## Appendix

### Reference Clauses for Demonstratives within an Interpretive Truth Theory

If our discussion in §4 is correct, then so-called complex demonstratives need no special treatment in the reference axioms of a truth theory for English. Whatever the correct formulation of the reference clause is, it will simply be plugged into the satisfaction clauses provided for complex demonstratives. To develop our proposal for giving the reference clause for demonstratives we want to start with a simple proposal (derived from Davidson<sup>48</sup>) which, while on the right track, fails for a number of technical reasons. We will consider a series of modifications, noting at each stage additional problems until we arrive at our positive proposal.

We begin with a rule for the use of the demonstrative that uses a definite description, as illustrated in [62].

[62]  $\text{Ref}_{[t,u]}(\text{'that'}) = \text{the object demonstrated by } s \text{ at } t.$

It is important to see that [62] does not say that '*that*' *means the same as* 'the object demonstrated by *s* at *t*'. This is because [62] is a reference clause, and not a satisfaction clause. Within the framework in which we are working, in order to treat '*that*' as synonymous with 'the object demonstrated by *s* at *t*', the recursive satisfaction clause [63] would be required.

[63] For all functions *f*,  $f \text{ sat}_{[t,u]} \text{'[That } x](x \text{ is } G)'$  iff *the* '*x* is now demonstrated by me'/'*x*'-variant *f'* of  $f \text{ sat}_{[t,u]} \text{'x is } G'$ .<sup>49</sup>

As we saw in §3, [63] cannot be the correct account of '*that*'. However, in [62], the description functions simply as a rule for picking out the referent of '*that*', relative to an occasion of use. Still, [62] has its own difficulties.

A first difficulty is that while '*that*' is used rigidly, the description on the right hand side of [62] is not rigid, and this will create problems with demonstratives in modal contexts. We might invoke the device due to Neale,<sup>50</sup> which rigidifies the description, as in [64].

[64]  $\text{Ref}_{[t,u]}(\text{'that'}) = \text{the object actually demonstrated by } s \text{ at } t.$

This repair, however, is unsatisfactory, because although it fixes the same reference as '*that*', as used successfully on an occasion of use, [64] will not result in interpretive truth conditions, since,



as we established in §3, 'that' is not synonymous with any quantifier expression. That is, for a sentence of the form 'That is F', we will derive truth-condition of form [65].

[65] 'That is F' is  $\text{true}_{[s,t]}$  iff the object actually demonstrated by s at t is F.

Since there is no definite description in 'That is F', but there is on the right hand side of [65], which is being represented as meeting an analog of Tarski's Convention-T for natural languages, [65] fails to meet the adequacy condition on an interpretive truth theory for the language.<sup>51</sup> This is evident from the fact that [65] represents a use of 'That is F' as false when a speaker fails to demonstrate an object.

To avoid this problem, we can try giving the description intermediate scope, as in [66]:

[66] For all speakers s, times t, the object x demonstrated by s at t is such that  $\text{Ref}_{[s,t]}('that') = x$ .

For a sentence of the form 'That is F', [66] will yield a T-theorem of the form [67].

[67] For all speakers s, times t, the object x demonstrated by s at t is such that 'That is F' is  $\text{true}_{[s,t]}$  iff x is F.

Since a variable is used in place of the subject term on the right hand side of its embedded bi-conditional, if a speaker demonstrates something at t, we can instantiate [67] to get a T-sentence whose right hand side will have a directly referring term in place of 'that' in the sentence mentioned on its left, which is just what we want. (Variables are directly referring terms *par excellence*.) However, giving the definite description intermediate scope raises another problem, for now we are committed to there being some object demonstrated using 'that' for each speaker and time, and that is clearly not the case. To solve this problem, we might appeal to the notion of a speaker's potentially demonstrating an object at a time, as follows:

[68] For all speakers s, times t, the x which s potentially demonstrates at t is such that  $\text{Ref}_{[s,t]}('that') = x$ .

However, [68] is also problematic, since it is not clear how to determine which unique object is potentially demonstrated by a speaker at a time (if it even makes sense!). It is not clear that there is a way of spelling out the idea without being committed to there being many things potentially demonstrated by any speaker at any time rather than just one. The only way we know how to avoid these problems, though at a cost, is to conditionalize on speakers demonstrating objects at

times, as follows:

[69] For all speakers  $s$ , times  $t$ , objects  $x$ , if  $s$  demonstrates  $x$  at  $t$ , then  $\text{Ref}_{[s,t]}('that') = x$ .  
The cost is that we cannot discharge ' $\text{Ref}_{[s,t]}('that')$ ' in T-theorems until we can discharge the antecedent of [69].

A difficulty with [69] is that it will not yield the right results if a speaker performs more than one demonstrative act at the same time. A speaker may, e.g., demonstrate something in using 'that' in a sentence he asserts, and simultaneously demonstrate something with a gesture. In this case, there would be no unique object demonstrated by the speaker at the time, and so [69] would fail to assign a referent to 'that' as used by the speaker at the time. A first step toward solving this problem is to relativize the demonstration to the use of 'that', as in [70].

[70] For all speakers  $s$ , times  $t$ , objects  $x$ , if  $s$  demonstrates  $x$  at  $t$  using 'that', then

$$\text{Ref}_{[s,t]}('that') = x.$$

This solution is incomplete, however, since it is at least possible for a speaker to perform two speech acts at the same time in which there is a use of the demonstrative 'that' at the same time in each utterance. (This could happen, e.g., if a speaker uses one sentence to perform ambiguously two speech acts, saying to his friend, 'Bring me that', pointing at an apple, while replying to someone else on the phone who has just asked, 'Should I bring you that book?') The only way we see to accommodate these possibilities is to conditionalize on speech acts, and relativize the reference relation to speakers, times, and speech acts, as in [71].

[71] For all speakers  $s$ , times  $t$ , speech acts  $u$ , and objects  $x$ , if  $s$  demonstrates  $x$  at  $t$  using 'that' in  $u$ , then  $\text{Ref}_{[s,t,u]}('that') = x$ .

To say that ' $s$  demonstrates  $x$  at  $t$  using "that" in  $u$ ' is to say that ' $s$  uses "that" in his performance of speech act  $u$  to demonstrate  $x$ '. This means also that satisfaction clauses for sentences with demonstratives must quantify over speech acts, as, e.g., in [72] (we ignore tense in the following to keep the discussion simpler).

[72] For all speakers  $s$ , times  $t$ , speech acts  $u$  of 'That is thin',  $f \text{ sat}_{[s,t,u]} 'That is thin' \text{ iff}$   
 $\text{Ref}_{[s,t,u]}('that')$  is thin.

This is needed to associate with the sentence for which satisfaction conditions are being given, and, indeed, the sentence as used in a particular speech act, the appropriate referent for the

demonstrative it contains. Relativization of the satisfaction predicate is required as well because one sentence, as we have seen, can be used by a speaker at a time to perform two speech acts with different truth conditions. Thus, relativization simply to speaker, sentence, and time interval will be insufficient to individuate finely enough what is to receive satisfaction conditions.

Reference clause [72] will assign a referent to 'that' only when speaker  $s$  uses 'that' in a speech act  $u$  to demonstrate an object. The truth theory, therefore, will issue in T-sentences for sentences containing demonstratives only when we can marshal information about the use of sentences in speech acts to assign a referent to the demonstrative as used by a speaker at a time in accordance with [72]. This shows that for sentences with demonstratives, truth conditions can be assigned only relative to a speaker's use of the sentence. There is, then, a sense in which the ultimate bearer of truth and falsity for such sentences must be seen as the speech act itself.

An important problem so far overlooked is how to handle the appearance of multiple demonstratives. Thus, consider [73] and [74].

[73] That is next to that.

[74] That is tall and that is thin.

In evaluating the reference clause for each demonstrative in [73] and [74], it looks as if we will be evaluating them with respect to the same time. But any use of [73] or [74] will involve two demonstrations using 'that', not one. So it looks as if the antecedent of our reference clause will never be satisfied, since it will require a unique demonstration by the speaker at the time in his utterance of the sentence using 'that'.

One solution is to give a truth theory not for English but for a language which has indexes for demonstratives to syntactically individuate them. One can then track different demonstrations by attaching them to differently indexed demonstratives.<sup>52</sup> Satisfaction clauses for [73] and [74] could then be given as in [75] and [76] respectively.

[75] For all functions  $f$ , speech acts  $u$ ,  $f \text{ sat}_{[s,t,u]}$  'That<sub>1</sub> is next to that<sub>2</sub>' iff  $\text{Ref}_{[s,t,u]}('that_1')$  is next to  $\text{Ref}_{[s,t,u]}('that_2')$ .

[76] For all functions  $f$ ,  $f \text{ sat}_{[s,t,u]}$  'That<sub>1</sub> is tall and that<sub>2</sub> is thin' iff  $f \text{ sat}_{[s,t,u]}$  'That<sub>1</sub> is tall' and  $f \text{ sat}_{[s,t,u]}$  'That<sub>2</sub> is thin'.

Then the reference axiom for demonstrative expressions can be given as in [77].

[77] For all speakers  $s$ , times  $t$ , numerals  $i$ , speech acts  $u$ , objects  $x$ , if  $s$  demonstrates  $x$  at  $t$  using 'that <sub>$i$</sub> ' in  $u$ , then  $\text{Ref}_{[t,u]}('that_i') = x$ .

Two problems face this suggestion. The first is that the approach does not interpret English directly. Anything less should be avoided if we can find a way to give the semantics of English sentences containing multiple demonstratives more directly, rather than by way of mapping them onto sentences in a regimented language which we do interpret directly. English speakers do not in fact exploit syntactic differences between different tokens of demonstratives in understanding sentences containing them. An approach which hewed closer to the surface syntax of English would also hew more closely to how we actually are able to understand it. The second objection is that every instance of the antecedent of the embedded conditional in [77] will be always false for every English speaker, since English speakers do not utter sentences with numerically subscripted demonstratives. At the cost of some additional complexity, the proposal could be modified to avoid this last difficulty by associating indices with the order of occurrence of simple demonstratives in speech acts and conditionalizing on a use of a demonstrative in the right order in a speech act in assigning referents to subscripted demonstratives. Since there are independent reasons to be unhappy with this approach, we will pursue it no further.

An approach sometimes adopted<sup>53</sup> is to relativize satisfaction and truth to sequences of demonstrata. Let ' $\sigma$ ' be a variable ranging over sequences of (potential) demonstrata, and ' $\sigma_1$ ' be 'the first member of  $\sigma$ ', ' $\sigma_2$ ' be 'the second member of  $\sigma$ ', and so on. Relativizing satisfaction to a sequence, we can give satisfaction conditions for 'That is next to that' as in [78].

[78] For all functions  $f$ , sequences  $\sigma$ ,  $f \text{ sat}_{[t,\sigma]} \text{ 'That is next to that'}$  iff  $\sigma_1$  is next to  $\sigma_2$ .

[78] will yield a T-theorem of the form [79].

[79] For all sequences  $\sigma$ , 'That is next to that' is  $\text{true}_{[t,\sigma]}$  iff  $\sigma_1$  is next to  $\sigma_2$ .

[79] is not quite right because it has descriptions (though disguised) on its right hand side. In any case, [79] has the undesirable feature of not telling us how to decide when a speaker has truly asserted a sentence with a demonstrative. To connect [78] and [79] with speakers' speech acts, something like [80] is needed.

[80] For all speakers  $s$ , times  $t$ , sequences  $\sigma$ , speech acts  $u$ , if  $u$  is produced by  $s$  using 'That is next to that' at  $t$  and the first  $x$  which  $s$  demonstrates at  $t$  using 'that' in  $u$  is  $\sigma_1$  and the

second  $x$  which  $s$  demonstrates at  $t$  using 'that' in  $u$  is  $\sigma_2$ , then 'That is next to that' is  $\text{true}_{[s,t,u]}$  iff 'That is next to that' is  $\text{true}_{[s,t,\sigma]}$ .

Since we must introduce in any case a truth predicate with places only for speaker, time, and speech act to relate our truth predicate relativized to speakers, times, and sequences of demonstrata to speakers' use of language, it is well worth asking what work the middleman is doing.

Our preferred approach is to track different uses of demonstratives in a sentence with multiple demonstratives by using information available to speakers when they actually interpret such sentences, namely, that the demonstratives are uttered in sequence.<sup>54</sup> This requires only a minor modification of the satisfaction conditions in [75] and [76]. Intuitively, what we want is to relativize the employment of the reference clauses for each demonstrative that occurs in a sentence to a different time. But of course the times must be related appropriately to the time interval during which the sentence is uttered, i.e., in evaluating a sentence relative to a speaker and time of utterance  $t$ , with more than one demonstrative expression, we wish to evaluate the demonstratives relative to different times within the interval during which the sentence is uttered and in the order in which they are uttered. For this purpose, we define a predicate ' $\Delta$ ' as follows:

Def.  $\Delta(t, t_1, \dots, t_n)$  iff  $t_1 < t_2 < \dots < t_n$  and  $t_1 \dots t_n$  occur in  $t$ .

One option is simply to add temporal variables bound by universal quantifiers to accommodate each distinct appearance of 'that' in an argument place in a primitive predicate, and for each combinatorial element in recursion clauses and add the predicate  $\Delta$  at the end to relate them. However, since our aim is interpretability, we will do better to let the predicate restrict the quantifiers rather than add it to the material on the right side of the contained biconditional. This leads to a revision of our satisfaction axioms as in [81] and [82].

[81] For all speakers  $s$ , functions  $f$ , speech acts  $u$  of 'That is next to that', times  $t, t_1, t_2$  such that  $\Delta(t, t_1, t_2)$ ,  $f \text{ sat}_{[s,t,u]}$  'That is next to that' iff  $\text{Ref}_{[s,t_1,u]}('that')$  is next to  $\text{Ref}_{[s,t_2,u]}('that')$ .

[82] For all speakers  $s$ , functions  $f$ , times  $t, t_1, t_2$ , such that  $\Delta(t, t_1, t_2)$ ,  $f \text{ sat}_{[s,t,u]}$  'That is tall and that is thin' iff  $f \text{ sat}_{[s,t_1,u]}$  'That is tall' and  $f \text{ sat}_{[s,t_2,u]}$  'that is thin'.

Clearly, this generalizes to predicates with an arbitrary (but finite) number of places, and to other recursive sentential connectives. By evaluating each occurrence of 'that' in sentence at a different

time, we avoid the difficulties reviewed above. This approach easily extends to complex demonstratives, given our treatment of them in §4.<sup>55</sup>

We end with a brief discussion of how the treatment given above for 'that' may be extended to more specialized demonstratives, and demonstrative pronouns, such as 'here', 'this', 'there', and 'he', 'she', 'her', 'him', 'it', 'you', etc. Let us take 'he' as an example. The same issues arise for the other terms. If 'he' is a singular term, receiving a reference clause in a truth theory, then we must decide whether gender is to play a role in determining the referent of a use of 'he'. Two options are [83] and [84].

[83] For all speakers  $s$ , times  $t$ , objects  $x$ , speech acts  $u$ , if  $x$  is demonstrated by  $s$  at  $t$  using 'he' in  $u$  *and*  $x$  is male, then  $\text{Ref}_{[s,t,u]} = x$ .<sup>56</sup>

[84] For all speakers  $s$ , times  $t$ , objects  $x$ , speech acts  $u$ , if  $x$  is demonstrated by  $s$  at  $t$  using 'he' in  $u$ , then  $\text{Ref}_{[s,t,u]} = x$ .

In [83], 'he' will not be assigned a referent unless what is demonstrated is male, while in [84], a referent will be assigned whether the object demonstrated is male or not. In [84], gender plays no semantic role, but is rather something conventionally implied by the use of the male pronoun which, strictly speaking, does not contribute to the truth conditions of sentences containing it. On neither proposal would it turn out that 'He is handsome' as used by a speaker at a time implies 'Something is male', though, on proposal [83], one *could* infer from 'He is handsome' *having been asserted truly or falsely* that something is male. To secure the stronger requirement that the content of what is asserted in using truthfully 'He is handsome' entails that something is male, one must give up the view that 'he' functions simply as a singular term. Rather, we would have to treat 'he' as a restricted quantifier phrase, a fusion, as it were, of 'that' with 'male'. But since no separate lexical item plays the role of the singular term in 'he', we would have to give satisfactions conditions for 'he' in context. We want to retain the idea that no sentence with 'he' in a position where it could only be used as a demonstrative pronoun is true or false except as used. We did this in the case of 'that' by assigning a referent to it only as it is used at a time to demonstrate something. We can't do that for 'he' because we can't give a separate reference axiom for 'he', if we want to secure that a necessary condition on the truth of a sentence in which it occurs is that the object demonstrated is male. So we must conditionalize satisfaction clauses of

sentences with demonstrative uses of 'he'. We illustrate this with 'He is handsome', or, rather, its regimented cousin, '[He x](x is handsome)', in [85].

[85] For all speakers  $s$ , times  $t$ , objects  $y$ , speech acts  $u$  of '[He x](x is handsome)', if  $s$  demonstrates  $y$  at  $t$  using 'he' in  $u$ , then for all functions  $f$ ,  $f \text{ sat}_{[s,t,u]} \text{ '[He x](x is handsome)'} \text{ iff some function } f' \text{ that differs from } f \text{ at most in that } f'('x') = y \text{ and } f('x') \text{ is male sat}_{[s,t,u]} \text{ 'x is handsome'}$ .

Which approach is correct depends on whether sentences like 'He is handsome', and 'She is beautiful' imply respectively 'Something is male' and 'Something is female'. (If 'Necessarily, if he is handsome, then he is male' is true, then 'is male' must contribute to the truth conditions of 'he is handsome'. It seems false to us, which would recommend [83] or [84].) We wish not to adjudicate between these approaches here, but it is worth noting what the consequences are of different judgements about the role of gender inflection; similarly for other specialized demonstrative terms.

## Notes

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1. We use 'simple demonstratives' to refer to the demonstrative determiners, 'this', 'that', 'these', and 'those'. We do not include in this category the personal pronouns 'he', 'she', 'it', 'they', etc., or the specialized demonstrative words 'there', 'then', and the like. For brevity we will often use 'demonstratives' when talking about demonstrative determiners, or 'demonstrative expressions' when talking about either simple or complex demonstratives. We concentrate for the most part in our discussion on 'that', but our remarks clearly extend straightforwardly to 'this', 'these', and 'those'.
2. We will use capital letters as schematic letters for predicates and nominals throughout.
3. See Colin McGinn, "The Mechanism of Reference," *Synthese* 49, no. 1 (1981): 157-186. McGinn's own account in the article this phrase titles appeals not just to the nominal but crucially to spatio-temporal relations between a speaker and objects in his environment. See Christopher Peacocke, "Demonstrative Thought and Psychological Explanation," *Synthese* 49 (1981): 187-217, and Martin Davies, "Individuation and the Semantics of Demonstratives," *Journal of Philosophical Logic* 11 (1982): 287-310, for representatives of the view that the structure of perceptual demonstrative thoughts is represented in part in sentence containing complex demonstratives.



4. See Richard Larson and Gabriel Segal, *Knowledge of Meaning* (Cambridge: MIT Press, 1995).
5. See Stephen Schiffer, "Indexicals and the Theory of Reference," *Synthese* 57 (1981): 43-100, and John Perry, "Indexicals and Demonstratives," in *A companion to the philosophy of language*, ed. Bob Hale and Crispin Wright (Oxford: Blackwell, 1997).
6. See David Kaplan, "Demonstratives," in *Themes from Kaplan*, ed. Joseph Almog, John Perry, and Howard Wettstein (New York: Oxford University Press, 1989), 481-564.
7. See Colin McGinn, *op. cit.*, Christopher Peacocke, *op. cit.*, Martin Davies, *op. cit.*, David Braun, "Structured Characters and Complex Demonstratives," *Philosophical Studies* (1994): 209-210, Francois Recanati, *Direct Reference: from Language to Thought* (Oxford: Blackwell, 1993) and Emma Borg, "Complex Demonstratives," *Philosophical Studies* (1998).
8. See Mark Richard, "Articulated Terms," in *Language and Logic*, ed. James Tomberlin, *Philosophical Perspectives* (Atascadero: Ridgeview, 1993).
9. Even apart from this assumption, there is a defect in the taxonomy. The taxonomy is based on the assumption that the only roles the nominal can play are to constrain the referent of the demonstrative, or to contribute to the truth conditions. But it would be possible to treat the nominal as not constraining the referent of the demonstrative or contributing to the truth conditions, but rather constraining whether the predicate is treated as being supplied with the object to which the demonstrative refers. See James Higginbotham, "Contexts, Models, and Meanings: a note on the data of semantics," in *Mental Representation: the Interface between Language and Reality*, ed. Ruth Kempson (Cambridge: Cambridge University Press, 1988).
10. See Barry Taylor, "Truth-theory for Indexical Languages," in *Reference, Truth and Reality*, ed. Mark Platts (London: Routledge & Paul, 1980), 182-198.
11. See Jon Barwise and Robin Cooper, "Generalized Quantifiers and Natural Language," *Linguistics and Philosophy* 4 (1981): 159-219.
12. Stephen Neale, "Term Limits," in *Language and Logic*, ed. James Tomberlin, *Philosophical Perspectives* (Atascadero: Ridgeview, 1993).

13. See Donald Davidson, "Truth and meaning," *Synthese* 17 (1967): 304-323, reprinted in *Inquiries into Truth and Interpretation* (New York: Clarendon Press, 1984), 17-36.
14. See Jeffrey King, "Are Complex 'That' Phrases Devices of Direct Reference?," *Nous* (Forthcoming).
15. The genitive case for both names and indexicals are exceptions to this rule, e.g., 'My hat', 'Mary's dog', etc., as well as numerical quantifiers, such as 'Three men'. We return to these constructions below. There are also some apparent exceptions to the rule barring the use of personal pronouns with nominals to form noun phrases, e.g., 'You children had better behave', 'We leaders of the senate have an obligation to see this bill passed', 'Everyone asks us philosophers what we do for a living'. The account we give of complex demonstratives is easily extended to these cases.
16. It is largely this feature of demonstratives that lead Jon Barwise and Robin Cooper, *op. cit.*, and Stephen Neale, *op. cit.*, to suggest treating demonstrative expressions as quantifiers.
17. Jon Barwise and Robin Cooper, *op. cit.*
18. See Donald Davidson, *op. cit.* For elaboration and defense, see Ernest Lepore, "What Model Theoretic Semantics Cannot Do?," *Synthese* 54 (1983): 167-188, Kirk Ludwig, "Meaning, Truth, and Interpretation," in *Discussions with Donald Davidson on Truth, Meaning and Knowledge*, ed. Ursula Zeglen (New York: Routledge, 1998), and Ernest Lepore and Kirk Ludwig, *Donald Davidson: Truth, Meaning, and Interpretation* (Typescript).
19. We employ the notation ' $f$ ' is an " $x$ "-variant of  $f$  to mean ' $f$ ' differs from  $f$  at most in what it assigns to " $x$ ".
20. We employ a four-place satisfaction predicate and three-place truth predicate. In each case, the relativization to speaker and time is read as 'as potentially spoken by  $s$  at  $t$ '. The satisfaction predicate expresses a relation between a formula in the language, a function, and a speaker and time, which holds when the function satisfies the expression understood in that language relative to the speaker and time as indices for rules determining semantic values for context sensitive elements in the expression. Similarly, the truth predicate expresses a relation between contextual

indices, a speaker and time, and a sentence in a language, which holds when the sentence understood relative to the indices in accordance with the axioms of the theory is true. As we will see in the appendix, an additional relativization to a speech act in which a sentence is used is necessary to properly accommodate demonstratives. For the time being, we avoid this complication, which will not affect the points we wish to make about complex demonstratives. We believe speaker and time are sufficient to fix context relative semantic properties of sentences and expressions relative to speech acts, but should there turn out to be a need for others, this could be accommodated in our framework without undermining any results in this paper.

21. We use 'demonstration' in the very broad sense of 'act of referring', whatever that might turn out to be; so, we do not assume a demonstration must involve a pointing or be of a salient object in the perceptual environment, or, indeed, be of any object in the present environment. Similarly, we use 'demonstrate' as equivalent to 'refer to'. See Tyler Burge, "Demonstrative Constructions, Reference and Truth," *The Journal of Philosophy* 71 (1974): 205-223 and Colin McGinn, *op. cit.*, for discussion.

22. Stephen Neale, *op. cit.*, Barry Taylor, *op. cit.*

23. Stephen Neale, *op. cit.*, Donald Davidson, *op. cit.*, Barry Taylor, *op. cit.* We believe, though we won't argue for it here, that any attempt to treat demonstratives as context sensitive quantifier words which avoids our previous objections will be effectively equivalent to the description paraphrase approach.

24. 'Actually' is inserted into the predicate in order to rigidify the description so as to accommodate sentences in which demonstratives are embedded in the scope of modal operators, e.g., 'Necessarily, that is greater than 7'.

25. This shows also that the suggestion that every use of a demonstrative is a complex demonstrative, with apparently simple demonstratives taking 'thing' as a suppressed nominal, a suggestion made to us by Kent Bach (and assumed by Barwise and Cooper, *op. cit.*), cannot be right. For if that were so, then we would find scope ambiguities even for apparently simple demonstratives. But we do not. Furthermore, it seems clear that 'that is not a thing', while false, is not logically false, though 'that thing is not a thing' is.

26. See Stephen Neale, *op. cit.*

27. See Stephen Schiffer, *op. cit.*, for a similar suggestion.

28. In accepting that (simple) demonstratives are singular referring terms, we commit ourselves to giving them reference clauses in our truth theory. We will postpone discussion of the form of such reference clauses until the appendix, since they introduce complexities not directly relevant to understanding our stated topic, complex demonstratives. For the present, we give satisfaction conditions of complex demonstratives recursively in terms of the expression 'the referent of "that" as uttered by  $s$  at  $t$ ', abbreviated as ' $\text{Ref}_{[s,t]}(\text{"that"})$ '. Our treatment for complex demonstratives is easily amended to accommodate refinements introduced in the appendix.

29. P. F. Strawson, "On Referring," *Mind* 59 (1950): 320-344 claimed in a famous discussion that sentences of the form 'That  $F$  is  $G$ ' and 'That is the  $F$  which is  $G$ ' say the same thing. He was onto something, for if we are right (see below), the truth of an utterance of either guarantees the truth of an utterance of the other when 'that' is used each to pick out the same object, at the same time.

30. This shows decisively that the nominal must contribute to the truth conditions. No account which treats it as merely constraining the referent of the demonstrative can account for the truth of such necessitated conditionals. On their account, it has the form, 'Necessarily, if it was  $X$  who won the prize, then someone wearing aviator sunglasses won the prize', where ' $X$ ' is a directly referring term. But so construed it is clearly false. Further evidence, which we will not recount here, is provided by considerations involving clefting, which are discussed in Mark Richard, *op. cit.* A possible counterexample discussed by Richard is considered in §6 below.

31. For the general case, we define the notion of a  $\phi/v$ -variant of a function  $f$ , as follows:

for any  $f$ ,  $f'$  is a  $\phi/v$ -variant of  $f$  iff<sub>df</sub>  $f'$  satisfies  $\phi$  and differs from  $f$  at most in what it assigns to  $v$ .

The satisfaction clause then is given as follows:

For all functions  $f$ , variable  $v$ , predicates  $\phi$ ,  $\psi$  containing a free occurrence of  $v$ ,  $f \text{ sat}_{[s,t]}$   
[ $[\text{That } v: \phi](\psi)$ ] iff [ $\text{the } f': f' \text{ is a } \phi/v\text{-variant of } f \text{ and } f'(v) = \text{Ref}_{[s,t]}(\text{"that"})$ ]( $f' \text{ sat}_{[s,t]} \psi$ ).

32. Since, on our account, the predicate restriction contains a requirement that ensures at most one thing will satisfy it, we could instead have used, e.g., 'some', 'one', or 'all', in place of 'the' in [20]. The essential role for these quantifiers is to bind the variables in the nominal and the predicate. Perhaps this partly explains why the quantifier is suppressed: there does not seem to be a single most appropriate quantifier word to use.

33. This treatment of complex demonstratives supports the thesis advanced by Neale, *op. cit.*, that every complex noun phrase in English is a restricted quantifier without having to give up the view that demonstratives everywhere they appear are genuine singular terms. Indeed, the current proposal, which is motivated independently of Neale's thesis, constitutes powerful support for it, since it shows how to reconcile it with what appears otherwise to be a recalcitrant exception.

34. *Ibid.*

35. See Matthew Dryer, "The Greenbergian Word Order Correlations," *Language* 68 (1992): 81-138.

36. G. Longobardi, "Reference and Proper Names," *Linguistic Inquiry* (1994).

37. Higginbotham, *op. cit.*, says that sentences like [4] are ungrammatical, and tries to explain away the intuition as confusing a referential use of 'someone' with a quantificational use. We do not see how one could insist on this except in the light of a theory which requires it. In any case, one could intelligibly add to [4], 'But I'm not going to say who he, or they, may be'.

38. Sometimes, of course, 'that' is pressed into service as a variant of 'the', and one could imagine someone uttering [22] with that in mind. We are not concerned with such uses of 'that', but rather with demonstrative uses. Our proposal requires that there be demonstrative uses of 'that' in complex demonstratives which contain pronouns of cross-reference bound by quantifiers outside the scope of the complex demonstrative. The objection we consider here is that "demonstrative uses" of complex demonstratives are not compatible with treating them as restricted quantifiers because of the oddity of such uses in sentences like [22].

39. See Taylor, *op. cit.*, Davies, *op. cit.*, Neale, *op. cit.*

40. Taylor, *op. cit.*

41. Interesting issues are raised by cases of complex demonstratives which are apparently intended to be interpreted as variables of cross-reference. Consider utterances of sentences such as 'Every boy kissed some girl that that boy loved'. There is a reading of this sentence on which 'that boy' is used demonstratively; for example, one may say this while pointing at a particular boy. But other utterances will naturally be interpreted as equivalent to 'Every boy kissed some girl that he loved', in which 'he' functions as a variable of cross-reference. It is perhaps not surprising to find this dual use, since 'he' and other pronouns of cross-reference also have a dual use as variables of cross-reference and as demonstrative pronouns. In the case of complex demonstratives, it is natural to suggest that the demonstrative itself is what functions as the variable of cross-reference (simple demonstratives clearly do, as in 'Everyone loses something, and that is usually just the thing he most needs at the time'). Thus, 'Every boy kissed some girl that that boy loved' where 'that' functions as a variable of cross reference, is treated as equivalent to '[Every x: x is a boy][some y: y is a girl such that [some z: z = x & z is a boy](z loved y)](x kissed y)'. The utility of using a complex demonstrative lies in the way the quantifier construction helps to draw attention to which quantifier binds the argument place occupied by the demonstrative by using the same nominal as that in the binding quantifier expression. This indicates that the values of the variable of cross-reference are intended to be restricted to objects which satisfy the predicate constructed from the nominal, making it salient as a candidate for binding by a quantifier in whose scope it falls which likewise restricts its variables to objects which satisfy the same predicate.

42. See Richard, *op. cit.*

43. Richard attributes the example to David Braun.

44. Paul Grice, *Studies in the Way of Words*, Harvard University Press (1989).

45. David Braun, *op. cit.*

46. Jeffrey King has proposed as an objection to our account the following interesting example:

[i] It is possible that that senator from California is a crook.

Intuitively, if someone utters this sentence pointing to someone who is not a senator from California, we think he has spoken falsely (note that this is additional evidence that the nominal

does contribute to the truth conditions sentences in which complex demonstratives appear!), and it is extremely difficult to get a narrow scope reading, which on our account is nonetheless semantically available. The first point to make is that, as we have seen, we can get narrow scope readings of complex demonstratives, which shows that the difficulty of getting the narrow scope reading must be pragmatic. This is confirmed by noting that the difficulty arises also for sentences such as [ii] which clearly contain a restricted quantifier in the position of 'that senator from California' in [i].

[ii] It is possible that the/some/every senator from California who is that man is a crook. It is easy to understand why the narrow scope reading eludes us. Where demonstration of an object in the environment is involved, the point of the nominal will be to help the auditor to figure out what is being demonstrated, and so the auditor will take the speaker to be committed to the demonstrated object's satisfying the nominal, which is to treat the noun phrase as having wide scope.

47. Higginbotham, *op. cit.*

48. Davidson, *op. cit.*

49. See note 31 for the definition of 'φ/u-variant'.

50. Neale, *op. cit.*

51. Tarski's Convention T requires that a truth theory entail all instances of the schema,

(T) s is true in L iff p

where 's' is replaced by a structural description of an object language sentence and 'p' by a translation of it into the metalanguage (Alfred Tarski, "The Concept of Truth in Formalized Languages," in *Logic, Semantics, Metamathematics* (Indianapolis: Hackett Publishing Company, 1983), 506). Tarski called such sentences 'T-sentences'. As Davidson first pointed out (Donald Davidson, "Truth and Meaning," in *Inquiries into Truth and Interpretation* (New York: Clarendon Press, 1984), 17-36), if we knew that a sentence met Convention T, we would be able to replace 'is true in L iff' with 'means in L that' *salva veritate*. Thus, if a truth theory meets Convention T and we have a way of identifying every T-sentence, we are in a position to state the meaning of each sentence in the object language. In the case of a truth theory for a language with

indexicals, demonstratives, and other context sensitive terms, and in which we treat the truth predicate as a relation between a sentence, speaker and time, as above, Tarski's Convention T must be modified. What we require then is that the truth theory for L entail all instances of the schema (T\*),

(T\*) For all speakers s, times t,  $\phi$  is true in L as potentially spoken by s at t iff p, in which 'p' is replaced by a sentence such that the result of replacing 'is true as potentially spoken by s at t iff' with 'means in L as potentially spoken by s at t that' yields a correct meaning claim, as in (M).

(M) For all speakers s, times t,  $\phi$  means in L as potentially spoken by s at t that p. (This would have to be modified slightly in the light of further relativization we urge on the basis of results later in this appendix.)

52. Most formal treatments of multiple demonstratives have resorted to subscripting the demonstratives in a formal representation. See, e.g., Tyler Burge, *op. cit.*, David Kaplan, *op. cit.*, Larson and Segal, *op. cit.*, David Lewis, "General Semantics," in *Semantics of Natural Language*, ed. Donald Davidson and Gilbert Harman (Boston: D. Reidel, 1975). David Braun, "Demonstratives and Their Linguistic Meanings," *Nous* (1996): 145-173, contains an interesting discussion of the difficulties that this approach raises in Kaplan's framework for giving semantics for demonstratives.

53. For example, Taylor, *op. cit.*, and Larson and Segal, *op. cit.* See also David Lewis, *op. cit.*, for a general discussion of the indices approach to handling context sensitivity.

54. Another suggestion that makes use of the general idea of an ordering of uses of demonstratives in an utterance of a sentence would consider whether a function satisfies a formula as used by a speaker at a time by asking whether some related functions satisfy a formula obtained by replacing a demonstrative in it with a variable which doesn't already appear in the original formula. The trick is to say a function satisfies the formula only if minimal variants of it, which assign the object demonstrated by the speaker using the demonstrative to the introduced variable, satisfy the formula. To do this, we can define two satisfaction relations, one which applies to formulas without demonstratives, and one which applies to formulas with demonstratives. The



one applied to formulas with demonstratives is defined recursively in terms of itself and the other relation. First it goes through and replaces all demonstratives with variables and constrains at each stage the functions we are looking to have satisfy it assign to the variables the referents of the demonstratives. Then our regular satisfaction relation is invoked. The clauses could be formulated as follows:

For all speakers  $s$ , times  $t$ , sentences  $\phi$ ,  $\phi$  is  $\text{true}_{[s,t]}$  iff  
 if  $\phi$  contains a demonstrative, then  
     for all speech acts  $u$ , if  $u$  is an utterance of  $\phi$  by  $s$  at  $t$ ,  
     then for all functions  $f$ ,  $f \text{ sat}_{[s,t,u,1]}^D \phi$ ;  
 if  $\phi$  does not contain a demonstrative, then for all functions  $f$ ,  $f \text{ sat}_{[s,t]} \phi$ .

Now we define ' $\text{sat}_{[s,t,u,n]}^D$ ' as follows.

For all speakers  $s$ , times  $t$ , functions  $f$ , speech acts  $u$ , numbers  $n$ , formulas  $\phi$ ,  $f \text{ sat}_{[s,t,u,n]}^D \phi$   
 iff  
 if 'that' is the first demonstrative appearing in  $\phi$ ,  
 then all  $f'$  differing from  $f$  at most in that  $f'(\text{fresh}(\phi)) \neq f(\text{fresh}(\phi))$ ,  
     if  $f'(\text{fresh}(\phi)) = \text{Ref}_{[s,t,u,n]}('that')$   
     then  $f' \text{ sat}_{[s,t,u,n+1]}^D \text{SUB1}(\phi, 'that', \text{fresh}(\phi))$ ;  
 ...  
 if no demonstrative appears in  $\phi$ ,  
 then  $f \text{ sat}_{[s,t]} \phi$ .

We replace '...' with additional clauses for the other demonstratives in the language. Here ' $\text{fresh}(\dots)$ ' is a function that yields the first variable not appearing in ' $\dots$ ' in some predetermined ordering of variables. For example, if we use subscripted variables, ' $x_1$ ', ' $x_2$ ', ...,  $\text{fresh}('x_8 \text{ is } x_1') = 'x_9'$ '. ' $\text{SUB1}(x,y,z)$ ' yields the result of substituting  $z$  for the first  $y$  in  $x$ . For example,  $\text{SUB1}('That \text{ is next to that}', 'that', \text{fresh}('That \text{ is next to that}')) = 'x_1 \text{ is next to that}'$ . ' $\text{Ref}_{[s,t,u,n]}('that')$ ' is read as 'the referent of the  $n^{\text{th}}$  use of 'that' in  $u$  by  $s$  at  $t$ '. The reference clause goes as follows.

For all speakers  $s$ , times  $t$ , speech acts  $u$ , numbers  $n$ , objects  $x$ , if  $s$  demonstrates  $x$  at  $t$  with the  $n^{\text{th}}$  use of 'that' in  $u$ , then  $\text{Ref}_{[s,t,u,n]}('that') = x$ .

We owe this suggestion to Greg Ray. We prefer the approach we outline in the text because it requires a simpler modification of the truth theory than the alternative just presented, and fits together nicely with a truth-theoretic semantics for tense which can exploit the apparatus introduced here. See Ernest Lepore and Kirk Ludwig, "Truth Conditional Semantics for Tense," in *Tense, Time and Reference*, ed. Quentin Smith (New York: Oxford, 1998).

55. An alternative approach is to give truth theories not for sentences with a truth predicate relativized to speakers, times, and speech acts, but to conditionalize on speech acts performed using sentences by speakers at times and employ a one place truth predicate of utterances. The same work can be done in this alternative framework. See Scott Weinstein, "Truth and Demonstratives," *Nous* 8 (1974): 179-184 for a sketch of the general approach.

56. Higginbotham, *op. cit.*, opts for a proposal for such terms which is effectively equivalent to [83].

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