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INCOMPLETE DESCRIPTIONS AND THE UNDERDETERMINATION PROBLEM

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Abstract
The purpose of this paper is to discuss two phenomena related to the semantics of definite descriptions: that of incomplete uses of descriptions, and that of the underdetermination of referential uses of descriptions. The Russellian theorist has a way of accounting for incomplete uses of descriptions by appealing to an account of quantifier domain restriction, such as the one proposed in Stanley and Szabó (2000a). But, I argue, the Russellian is not the only one in a position to appeal to such an account of incomplete uses of descriptions. Proponents of other theories, such as the Fregean, which does not treat descriptions as quantifiers, might benefit from this account of domain restriction. In the second part of the paper I discuss referential uses of incomplete definite descriptions. Relative to such uses, Wettstein (1981) and others have argued that the Russellian theory faces a problem of underdetermination of semantic content. Neale (2004) has replied to this objection showing why it does not pose a threat to the Russellian theory. Again, I argue that not only the Russellian, but also the Fregean can subscribe to Neale's (2004) suggestion.

Key words: incomplete definite descriptions, quantifier domain restriction, referential uses, underdetermination

1. Incomplete definite descriptions

One of the most intuitive of all the objections to the Russellian theory of definite descriptions (DDs, henceforth) is due to Strawson (1950, pp. 332-323). The Russellian theory fails, Strawson argued, because the theory makes obviously false predictions in many cases in which the uniqueness constraint is not fulfilled. Suppose that, upon arriving at the classroom where the class is supposed to take place, I realize that the door is locked. I utter with surprise the following sentence:

(1) The door is locked.

On the Russellian theory, the utterance of (1) is true iff *there is a unique door in the world of the context and it is locked*. Given that there is more than one door in the world, the prediction of the theory is that my utterance is *false*. But this is wrong: there is a strong intuition that this utterance of (1) is literally *true*. DDs that give rise to this problem for the Russellian theory are known as *incomplete DDs*, as opposed to *complete*

DDs, such as ‘the inventor of the pen’, or ‘the Spanish prime minister in 2014’. If I use a complete DD such as ‘the room in front of me’ instead of the DD in (1), the Russellian prediction about the resulting sentence does not conflict with intuitions. For this reason it is known in the literature as the *incompleteness problem*.[1]

In discussing Strawson’s objection to the Russellian theory, Neale (1990, pp. 94-95) makes the following observation: if we treat DDs as the Russellian does, then the definite determiner is a quantifier; under this assumption, he notes, the incompleteness problem for DDs is an instance of a more general phenomenon that affects all quantifiers. Neale writes: “the problem of incompleteness has nothing to do with the use of definite descriptions *per se*; it is a quite general fact about the use of quantifiers in natural language.” (1990, p. 95) Consider sentence (2) uttered at the end of a party.

(2) Every bottle is empty.

Assuming a standard semantic value for the quantifier ‘every’, on which the domain of quantification contains all objects in the world of evaluation, the semantic value we obtain for the utterance of (2) is that it is true iff *every bottle in the world of the context is empty*. The utterance of (2) is predicted to be *false*, as there are many bottles that are not empty. But this is incorrect; if, by hypothesis, every bottle *at that party* is empty, the utterance (2) is intuitively *true*. It is not false just because there is an empty bottle somewhere else in the world. So, the simple standard assumption about the semantic value of ‘every’ makes false predictions. This example illustrates Neale’s claim that the incompleteness problem affects quantifiers in general, and not only the Russellian theory of DDs. That is, it is an instance of the more general problem of Quantifier Domain Restriction (QDR, for short).

2. The syntactic variable theory of QDR

The problem of QDR is that of finding a way to *restrict* the domain quantification (e.g. the set of all the bottles in the world, in the case of the utterance of (2) discussed above) to a contextually salient subdomain (e.g. the set of all the bottles present at the party), relative to which the semantic theory predicts intuitively correct truth-conditions. If the incompleteness problem for DDs (at least when we consider the Russellian theory) is an instance of the more general problem of QDR, it is important to appeal to a reliable theory of QDR. I will not discuss in what follows all the approaches to QDR available in order to justify my choice. Instead, I directly choose one popular approach. Probably the most widely discussed semantic proposal is the one developed in von Fintel (1994, p. 30), and later in Stanley and Szabó (2000a, p. 253) in a different version.[2] This is both a syntactic and a semantic approach, in the sense that it postulates syntactic constituents at

[1] Russell (1957, p. 385) replies to Strawson that he was only dealing with complete DDs such as ‘the king of France in 1905’. These are both complete as well as context-independent, or, in Russell’s words, “descriptive phrases from which egocentricity is wholly absent”.

[2] This approach is a popular one, although it is not without problems. It received a good amount of criticism (e.g. Carston (2002), Bach (2000), Neale (2000, 2004), Recanati (2004), Elgardo and Stainton (2004), Pagin (2005), Collins (2007), Pupa and Troseth (2011)).

the level of the LF of natural language sentences containing quantifiers.[3] The approach postulates a variable at LF that is not realized phonologically, that is, it is not present at PF (i.e. the superficial, of phonetic form of natural language sentences). This is not a simple individual variable (of type <e>), but a complex expression, which is constituted by two variables: a variable 'f' of semantic type <e,<e,t>>, and variable 'i' of semantic type <e>. The value of both variables is provided by the context. The value of 'f' is a function that maps an object onto a set of individuals. The value of 'f' takes as argument the value of 'i', and maps it to a set of individuals that constitutes the restrictor of the domain of the quantifier.

There are different ways in which this idea could be implemented syntactically. The solution Stanley and Szabó (2000a, p. 251) adopt for associating variables with quantifier expressions in LF is to have both 'f' and 'i' "*co-habit* a node" with the CN that occurs in the quantifier phrase. The LF of sentence (2) is the following:[4]

(3) $[_{S}$ $[_{DP}$ $[_{DET}$ Every] $[_{CN}$ bottle, f(i)]] $[_{VP}$ is empty]]

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[3] There are approaches to QDR that I do not discuss here. Pragmatic approaches have in common the idea that the restriction of the domain of quantification is not the contribution of the semantic value of the quantifier or other expressions in the LF of the sentence. On a Gricean approach to QDR such as Kent Bach's (see Bach 1994, 2000, 2004) the literal truth-conditions of an utterance of (2) are *not* the intuitively correct truth-conditions. The former predict that it is *false* (as there are non-empty bottles in the world). But the utterance *seems true* because the communicated content is true (even though the semantic content is not). Applied to DDs (see Bach 2004, pp. 220-223), the idea is that the literal proposition expressed by (1) (on the Russellian theory) lacks "relevant specificity (Bach 2004, p. 223); assuming that the speaker is rational and observes the Gricean maxims, the literal proposition is "completed" to the proposition intuitively conveyed, that the door *of this classroom* is locked. On Recanati's (1993, p. 248; 2004, pp. 23f, 126-127) pragmatic approach to QDR, it is the result of a primary pragmatic process that takes as input the *literal* semantic value of the QNP and give as output its *derived* (modified) semantic value (2004, p. 27). With respect to the utterance of sentence (2), a pragmatic process of *free enrichment* takes as input the semantic value of 'every bottle' and gives as output the enriched content *every bottle at the party*. A similar explanation, Recanati (2010, pp. 44-45) argues, is the enrichment of incomplete DDs into complete ones. I do not discuss these pragmatic approaches here. Stanley and Szabó (2000a, 2000b) raise various worries about the correctness of the predictions these accounts make. Elbourne (2008) and Elbourne (2013, pp. 172-190) provide further arguments against pragmatic approaches to QDR. The latter argues for a syntactic variable approach combined with situation semantics.

[4] On von Fintel's proposal (1994, p. 30) the variables 'f(i)' cohabit the same node with the quantifier determiner, and not the noun. The LF of sentence (2) is:

$[_{S}$ $[_{DP}$ $[_{DET}$ Every, f(i)] $[_{CN}$ bottle]] $[_{VP}$ is empty]]

There are several reasons why it is preferable to place the restriction in the same node with the nominal, and not the determiner: one of them has to do with correctly accounting for cross-sentential anaphora (Stanley & Szabó 2000a, p. 257); another has to do with accounting for the context-sensitivity of comparative adjectives (Stanley 2002, p. 380); finally, the latter alternative makes false predictions concerning superlatives (Stanley 2002, p. 374). I stick in what follows to Stanley and Szabó's nominal restriction proposal. However, this option is not without problems, see Kratzer (2004).

According to Stanley and Szabó (2000a, p. 253), the interpretation of the node in which 'f(i)' occurs in (3) is the intersection of the denotation of 'bottle' and the denotation of 'f(i)', after the context has supplied the values to the variables. In their own formulation the extensional semantic value of the node can be given as follows (where 'c' is an assignment determined by the context):

$$||\text{bottle}, f(i)||^c = ||\text{bottle}|| \cap \{x: x \in c(f)\,(c(i))\}$$

If the context assigns to 'i' the individual *this room*, and to 'f' the extension relative to the world of evaluation of the relation of *being inside*, then the value of 'f(i)' will be *the class of objects that are inside this room* (relative to the world of evaluation).[5] This is the restricted domain of objects we are quantifying over.[6]

In order to represent the semantic values of natural language expressions I rely in what follows on the framework for compositional semantics developed in Heim and Kratzer (1998). Stanely and Szabó do not develop their account within this framework. However, given that it is a standard framework, it is interesting (as well as useful for the forthcoming discussion) to see how their proposal could be implemented in it. In the interest of space, I do not repeat here all the details of this framework, as they are well known. However, it is useful to remind the reader that Heim and Kratzer (1998) take the interpretation function to assign a semantic value to each one of the simple expressions relative to possible worlds, assignments and context.[7] The idea of the Heim and Kratzer (1998) framework is that all expressions of the language (with the exception of variable binders) are assigned a semantic value. These semantic values are extensional. These extensions have different types, as follows:

i. <e> and <t> are basic extensional semantic types.
ii. If σ and τ are extensional semantic types, then $\langle\sigma,\tau\rangle$ is an extensional semantic type.
iii. Nothing else is a semantic type.

[5] Both von Fintel (1994, p. 31) and Stanley and Szabó (2000a, p. 250) argue that it is necessary to postulate a *complex* variable of the form 'f(i)' in order to account for the phenomenon of *quantified contexts*. On a reading of the sentence 'In most of John's classes, he fails exactly three Frenchmen', the elements the first quantifier quantifies over (classes of John's, in the educational sense) have the role of restricting the second quantifier. That is, the QNP 'three Frenchmen' is implicitly completed to *three Frenchmen in a class of John's*.

[6] Strictly speaking, what 'f(i)' does is add a further restriction to the nominal that the quantifier determiner combines with. As Stanley writes, "According to this theory of quantifier domain restriction, it is due to the fact that each nominal co-occurs with variables whose values, relative to a context, together determine a domain. Thus, if it is right, 'quantifier domain restriction' is a misleading label; better would be 'nominal restriction'." (Stanley 2002, p. 373) Maybe an ever better term would be 'nominal completion'.

[7] With the exception of the binder. The semantic value of complex expressions containing binders is given by a specific rule of composition called Predicate Abstraction; see Heim and Kratzer (1998, pp. 114, 125).

Consequently, we have the following hierarchy of domains of semantic values that correspond to the semantic types introduced:

i. D_e, the domain of individuals.
ii. $D_t = \{0, 1\}$, the set of truth-values.
iii. If σ and τ are extensional semantic types, then $D_{<\sigma,\tau>}$ is the set of all functions from Dσ to Dτ.

The simple expressions in this framework are the ones that inhabit a node. The semantic value of complex expressions is calculated from that of simple expressions by using the composition rule called Functional Application (Heim & Kratzer, 1998, pp. 13, 105): if two expressions α and β combine according to the syntactic rules of the language in order to form a complex expression [α β], then the meaning of one of the expressions will be a function that can take as argument the meaning of the other expression. However, the semantic value of the node [$_{CN}$ bottle, f(i)]] in (3) cannot be calculated in this way from the semantic value of 'bottle' and that of 'f(i)', as Functional Application does not apply to elements *inside* a node. The expression [$_{CN}$ bottle, f(i)] is a simple expression in our framework. For that reason, we need to introduce a new semantic value for the node [$_{CN}$ bottle, f(i)]] (apart from the one we already have in the framework for CNs such as 'bottle'). And this is the one suggested above by the authors, which we could formulate in the Heim and Kratzer framework, using λ calculus as a metalanguage, as follows:

$||\text{bottle, f(i)}||^{w,a} = \lambda x_{<e>}$.x is a bottle and is a(f) (a(i)) in w

The notation is as in Heim and Kratzer (1998): x is an e-type variable, w stands for the circumstance of evaluation, in our case, a possible world[8], and 'a' is the contextually determined assignment, which assigns a value to the variables 'f' and 'i'.[9]

[8] The world of evaluation is actually missing from the purely extensional part of the Heim and Kratzer framework, and it does not play a significant role here either. However, I introduce the reference to a circumstance of evaluation for conformity with the standard Kaplanian framework for natural language semantics.

[9] An alternative solution is to consider that 'f(i)' occupies its own node. On this hypothesis, the LF of sentence (2) might look like this:

[$_S$ [$_{DP}$ [$_{DET}$ Every] [[$_{CN}$ bottle] [f(i)]]] [$_{VP}$ is empty]]

It is not possible to calculate the value of the node [[$_{CN}$ bottle] [f(i)]] by Functional Application, because both [$_{CN}$ bottle] and [[f(i)]] are of type <e,t>. But we could calculate it using the rule Predicate Modification, which is introduced in Heim and Kratzer (1998, pp. 65-68) precisely to cope with cases of type mismatch of this kind (see §1.9 fn.26). The benefit of this proposal is that it does not require that we introduce a new semantic value for the CN 'bottle', as below, which makes the expression ambiguous. However, Stanley and Szabó (2000a, p. 255) reject this option: "Our worry is not that such a syntactic justification is impossible to provide. It is rather that, without compelling reasons, one should not place such a burden on syntactic theory." Given that my aim here is simply to implement the Stanley and Szabó proposal in the in Heim and Kratzer framework, I will not choose this alternative, which the authors explicitly reject.

3. The syntactic variable approach to incomplete DDs

Going back to DDs, let us look at how the Stanley and Szabó proposal applies to incomplete DDs. Consider again sentence (1). On the present approach, the LF of (1) is (4):

(4) $[_{S} [_{DP} [_{DET}$ The$] [_{CN}$ door, f(i)$]] [_{VP} [_{V}$ is$][_{A}$ locked$]]]$

For the utterance of (1) we obtain the following semantic values for the node in which the variables occur, assuming that the contextually determined values for 'f(i)' is the property of *belonging to this room* (the salient room in the scenario). I slightly depart from Heim and Kratzer's notation in what concerns the specification of semantic values of type <t> by adding "1 iff", so that the result has the standard form in which truth-conditions are usually given.

$||[_{CN}$ door, f(i)$]||^{w,a}$ =
= $\lambda x_{<e>}$.1 iff x is a door and is a(f)(a(i)) in w =
= $\lambda x_{<e>}$.1 iff x is a door and belongs to this room in w.

On the Russellian theory of DDs these are quantifier expressions, and so the present approach to QDR covers incomplete DDs as well. According to the Russellian theory, the semantic value of the definite article has type <<e,t>,<<e,t>,t>: it takes as argument a function of type <e,t> (which characterizes a set of individuals), and it returns a function of type <<e,t>,t>, which is a function from a set of individuals to a truth-value. The semantic value of 'the' can be represented as follows (the convention being that 1 and 0 stand for *true*, and respectively, *false*; 'f' and 'g' are variables of type <e,t>, so they return a truth-value for each element of type <e>):

$||\text{the}||^{a,w} = \lambda f_{<e,\,t>}.[\lambda g_{<e,\,t>}$.1 iff there is a unique $x \in D_e$ such that f(x)=1, and g(x)=1]

So, we get:

$||[_{DP} [_{DET}$ The$] [_{CN}$ door, f(i)$]]||^{w,a}$ =
= $||\text{the}||^{a,w}(||[_{CN}$ door, f(i)$]||^{w,a})$ =
= $[\lambda f_{<e,t>}.[\lambda g_{<e,t>}$.1 iff there is a unique $x_{<e>}$ such that f(x)=1, and g(x)=1]]($\lambda x_{<e>}$.1 iff x is a door and belongs to this room in w) =
= $\lambda g_{<e,t>}$.1 iff there is a unique $x_{<e>}$ such that x is a door and belongs to this room in w, and g(x)=1

And so,

$||[_{S} \ldots]||^{w,a}$ =
= $||[_{DP} [_{DET}$ The$] [_{CN}$ door, f (i)$]]||^{w,a}(||[_{VP} [_{V}$ is$][_{A}$ locked$]]||^{w,a})$ =
= [$\lambda g_{<e,t>}$.1 iff there is a unique $x_{<e>}$ such that x is a door and belongs to this room in w, and g(x)=1]($\lambda x_{<e>}$.1 iff x is locked in w) =

= 1 iff there is a unique $x_{<e>}$ such that x is a door and belongs to this room in w, and x is locked in w.

In the given scenario there is a unique door belonging to the salient room, and so the utterance of (1) is predicted to be true. This means that the Russellian theory combined with the Stanley and Szabó approach to QDR solves the incompleteness problem, as it predicts the intuitively correct truth-value for the utterance of (1).

4. Extending the approach to the Fregean theory of DDs

Although the incompleteness problem is usually discussed in the literature in relation to the Russellian theory, it is a problem for other theories of DDs as well. Consider, for instance, the Fregean theory. Following Heim and Kratzer (1997, p. 80), I take the semantic value of the definite article on the Fregean theory to be a *partial function* of type <<e,t>,e> that is not defined on all elements of type <e,t>, but only for a subset of them. That is, it only returns a value for those arguments that fulfil a certain condition, in particular, that there is a unique individual that fulfils the description. So, we have:

$||\text{the}||^{a,w} = \lambda f \in D_{<e,t>}$ and there is exactly one $x_{<e>}$ such that f(x)=1. ιx: f(x)=1

Here, 'ιx: f(x)=1' is to be read as denoting a semantic value of type <e>, in particular, the individual x that uniquely fulfils the condition f(x)=1.

Incomplete uses of DDs pose a problem for this theory as well. The semantic value of a DD is a partial function that is not defined for worlds relative to which there is no unique individual that satisfies the description. Sentence (1) has a truth-value only in case there is a *unique door in the world of evaluation*. Given that there are many doors in the actual world, both theories predict that sentence (1) is *truth-valueless*, which is intuitively incorrect. By hypothesis the relevant door is locked, and so the sentence is intuitively judged as *true*. In conclusion, although the Russellian theory and the Fregean theory make different predictions about to the truth-value of the utterance of (1), they both make incorrect predictions. This means that both theories have an incompleteness problem.

On the Fregean theory DDs are *not* quantifier expressions. Their semantic type is <e>, and not <<e,t>,t>, as that of quantifier phrases. However, it is possible to extend the Stanley and Szabó theory in order to combine it with the Fregean theory as well. On this particular approach (in contrast to some alternatives, see fn. 4 and 9) the variable co-habits a node with the noun. As a result, the variable will be present and make a contribution to truth-conditions independently of whether the determiner 'the' is treated as quantificational or as a singular term.

As Stanley (2002, p. 373) points out (see fn. 6 above), this is a theory of *nominal* restriction (or, better, nominal completion), and not, strictly speaking, of *quantifier domain* restriction. So, this approach to the incompleteness problem of DDs is available when these are analysed as the Fregean proposes, although they are not quantifiers on this approach. We get the following semantic value for the DD:

$||[_{DP} [_{DET} \text{the}] [_{CN} \text{door}, f(i)]]||^{w,a} =$
$= ||\text{the}||^{a,w}(||[_{CN} \text{door}, f(i)]||^{w,a}) =$
$= [\lambda f_{<e,t>}$ and there is exactly one $x_{<e>}$ such that f(x)=1. ιx: f(x) = 1]($\lambda x_{<e>}$.1 iff x is a door and belongs to this room in w) =
= there is a unique door that belongs to this room in w. ιx: x is the unique door that belongs to this room in w.

Again, the utterance of (1) is predicted to be true in the context of utterance, which is intuitively correct. So, combining the Fregean theory with the syntactic variable approach to QDR we solve the incompleteness problem for this theory.

In conclusion, the syntactic variable approach to QDR does account for incomplete DDs on both theories considered. It correctly predicts the intuitive truth-conditions by completing the description with contextually determined properties.

In the next section I discuss the so-called "underdetermination problem" for referential uses of incomplete DDs. I implement the solution suggested in Neale (2004) in the Stanley and Szabó syntactic variable approach to QDR, and I show that this solution is available to both the Russellian and the Fregean theorist of DDs.

5. The underdetermination problem

Consider again sentence (2) ('Every bottle is empty.'). What is the contextually determined property that restricts the domain of quantification? We have assumed so far that it is the property of *being at that party* (the relevant party in the context of utterance). But there are other equally plausible alternatives: if the party takes place in a particular room, an equally relevant property is that of *being in that room*. The context does not constrain us to choose one of these restrictions over the other. So we get two equally plausible restrictions of the quantifier in (2). On the former one, the utterance of (2) is true relative to w iff every bottle *at that party* in w is empty; on the latter one, the same utterance is true relative to w iff every bottle *in that room* in w is empty. These truth-conditions are different: there are possible worlds relative to which the truth-value of the utterance of (2) is different on one option from the other. Consider a world w' in which the party takes place in two rooms of the house, instead of just one room; in one room all bottles are empty, but in the other there is one full bottle left. Relative to w' the utterance of (2) is predicted to be *false* on the first option (with the at-that-party completion), but *true* on the second (with the in-that-room completion).

The underdetermination problem is the problem of finding a strategy to determine in a systematic way the property that restricts the domain of quantification. Stanley and Szabó (2000a, pp. 237-238) argue this is a problem for "the syntactic ellipsis theory" of QDR, which is how they interpret Neale's (1990) "explicit" approach to QDR (an approach which bears important similarities to Recanati's approach mentioned in fn. 3). But it is equally a problem for the Stanely and Szabó approach to QDR and to incomplete DDs, a fact which they do not acknowledge. In discussing sentence (1) ('The door is locked.'), we assumed that the relevant completion in the context of utterance leads to the following truth-conditions: the utterance of (1) is true iff the door that *belongs to this room* is locked. But there are equally salient completions, such as:

belonging to classroom A2 (assuming this is the name of the classroom), or *in front of me*, or *that I am looking at right now*, or *that is closest to me* etc. Each of them is equally relevant and salient. But, depending on which completion we choose, the utterance of (1) has different truth-conditions, as there are possible worlds in which I (the speaker) am in front of room A1 at the time of the utterance, not A2, or in which the door is not in front of me at the time of the utterance, but on my left etc. With respect to those worlds the different options for completion determine different truth-values for the utterance of (1).

It is true that the Stanely and Szabó approach to QDR and to incomplete DDs *restricts* the range of possible completions to those that have a certain structure, the one that corresponds to the complex variable ‘f(i)’. Consider again sentence (1): ‘The door is closed.’. The complete DDs cannot be, for instance, the *black* door, the *main* door, the *usual* door, because such completions could not result from assigning values to ‘f’ and ‘i’. The completion must have the structure of a relation of type <e,<e,t>> combined with a type <e> semantic value. However, there are *various* salient completions that have this structure, and which result from assigning contextual values to the variables. A possible completion is the door *belonging to A2* (assuming this is the name of the classroom), where ‘f’ contributes the property *belonging to*, and A2 is the value of ‘i’. But an equally salient completion is the door *that is closest to me*. Again, there is no reason to suppose that the context picks out a particular completion among the various options available. Therefore, contrary to what Stanely and Szabó suggest, the underdetermination problem is not only a problem for other accounts, but for theirs as well.

A number of authors, including Wettstein (1981), Reimer (1992), Schiffer (1995) and others, have argued that the Russellian theory fails because there is no possible way to find a determinate completion of the description.[10] The authors mentioned argue that the Russellian theory cannot deal successfully with the underdetermination problem, especially for an important class of uses of DDs, i.e. the *referential uses*, as Donnellan (1966) famously characterized them. When a speaker uses a DD referentially she has a particular individual in mind to which she intends to refer with the DD. When the use is attributive, she refers to “whoever” or “whatever” fulfils the description.[11] In the case of referential uses intuitively there is *no* indeterminacy of the content literally expressed. The content *is* determinate, i.e., the individual the speaker refers to, but the Russellian theory fails to predict this. So, the Russellian theory fails.

As Wettstein points out, no matter how plausible a hypothesis about the unpronounced descriptive material that completes the DD may be, there is always the possibility that the speaker rejects that that is what she meant. Consider a speaker’s referential use of ‘the table’:

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[10] The authors mentioned discuss Neale’s (1990) “explicit” approach to the incompleteness problem for the Russellian theory. However, their argument is equally forceful against the approach to incompleteness taken here, based on Stanley and Szabó's proposal. See Stojanovic (2002) for a defence of Neale’s strategy against the objection that it cannot solve the underdetermination problem.

[11] However, as Corazza (2006, p. 2, n.1) points out, this is not an infallible test of attributive uses. Sometimes the clause “whoever she/he/it is” can be attached both to the referential use of descriptions and to referential uses of indexicals. E.g.: “The woman over there, whoever she is, is attractive” and “That woman over there, whoever she is, is attractive”.

> 'Although I meant to refer to that table' our speaker might well reply, 'I don't think I meant to refer to it as the table in room 209 of Camden Hall at t_1 as opposed to, say, as the table at which the author of *The Persistence of Objects* is sitting at t_1. (1981, p. 247)

It does not help at this point to postulate that the completion be the one that *the speaker has in mind* when uttering the sentence. As Wettstein notes,

> Surely it is implausible in the extreme to suppose that in fact one of these descriptions captures what the speaker intended but that we cannot, even with the help of the speaker himself, come to know which description that is. (1981, p. 247)

The problem goes even deeper. Arguably, if the audience does not grasp the proposition the speaker intends to convey, communication is not successful.[12] When the speaker uses an incomplete description and has a particular completion in mind, it is necessary that the audience grasp that completion in order for communication to be successful. But it is not at all clear how the audience could grasp that particular completion. There is, so to say, an underdetermination problem at both ends of a communication process.

The underdetermination problem is only a problem for *incomplete* DDs, and not for complete ones. But the argument against the Russellian turns out to be especially important given that most incomplete DDs are used referentially. While it is possible to find attributive uses of incomplete DDs, such as 'the cat', 'the man' etc., most such expressions are used referentially.[13] And so the theories mentioned make incorrect predictions for an important class of uses, covering most uses of incomplete DDs.

Wettstein (1981), Reimer (1998), Peacocke (1975) and others suggest a different approach to referential uses: "the idea is that 'the' is ambiguous, having both a quantificational meaning that yields attributive definites and a referential meaning that yields referential definites." (Devitt 2007, p. 10) The attributive meaning of 'the' is the Russellian one. The semantic value of the DD when used referentially is an individual, i.e., the one that satisfies the descriptive condition. The fact that the DD is incomplete is not a problem, as the causal-perceptual connection that the speaker establishes with the object plays a role in identifying the referent. This view of referentially used DD parallels the view of complex demonstratives such as 'that bear', which are also referential expressions and usually descriptively incomplete. This proposal, according to which an utterance of a sentence containing a referentially used DD literally expresses a singular (or object-dependent) proposition, is known as *Referentialism*.

Although both Referentailism and the Fregean theory take DDs to be expressions of type <e>, they differ on at least two accounts: first of all, Referentialism takes the determiner 'the' to be *ambiguous*, having both a referential and an attributive meaning.

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[12] Buchanan and Ostertag (2005, p. 889) argue that the solution to the underdetermination problem is to reject the assumption that "successful linguistic communication requires the hearer to identify a proposition uniquely intended by the speaker."

[13] It is possible to find incomplete DD used attributively. For instance, I can use 'the mayor' as short for the mayor *of this town* (e.g. in saying 'The mayor is not doing a great job', upon seeing the bad state of the public infrastructure in the town that I am visiting). If I do not know or have him or her in mind in the relevant sense that would allow me to use the description referentially, then the use can only be attributive. For a discussion of this point see Salmon (2004).

Second, on the Fregean theory DD are *not* rigid designators (they might designate different objects relative to different possible worlds), while on the Referentailist proposal referentially used DDs are rigid designators (the referent is always the object the speaker intends to refer to).

Referentialists about DDs usually criticize the Russellian theory, and not the Fregean one. For instance, Devitt writes about referential uses: “There is no hope of solving the problem [of incomplete descriptions] for the referential ones without abandoning Russell and adopting [Referentialism].” (2004, p. 303) However the argument from underdetermination briefly mentioned above applies to the Fregean theory as well. The underdetermination problem affects not only the Russellian theory, but the Fregean theory as well.

6. Neale’s solution to the underdetermination problem for referential uses

To sum up, we have seen that Wettstein, Reimer, and others argue that the Russellian theory fails to solve the underdetermination problem for the case of incomplete DDs. The Stanley and Szabó approach by itself does not help overcome this problem, as we have seen. This problem is especially important with referential uses because in that case there is *no perceived indeterminacy* of the content literally expressed. Intuitively the contribution of the DD to semantic content is the object referred to.[14] However, the Russellian theory predicts that the content is indeterminate. So, the Russellian theory fails. As already pointed out, this argument could be easily extended to the Fregean proposal as well.

However, there is a straightforward solution to the underdetermination problem. It has been proposed in Neale (2004, pp. 171-173). Neale offers a *semantic* account of the referential use of DDs without having to abandon the Russellian theory. The idea of the proposal is that, when an incomplete DD is used referentially, the completion of the description is achieved with the help of a variable that takes as value precisely the individual the speaker is referring to with the description. Neale uses an example introduced in Schiffer (1995, p. 114): the speaker and the hearer are waiting in the audience for the philosopher Ferdinand Pergola to give a talk. When he shows up, the speaker utters in surprise:

(5) I’ll be damned! The guy’s drunk!

Schiffer (1995) comments on this case:

> Imagining myself as your audience, I do not see how I could have identified any one definite description, however complex, as *the one* that figured in the proposition you asserted. And yet, it would seem that I understood your utterance perfectly well. (1995, p. 115)

[14] In the case of attributive uses, it might be argued that the content *is* in fact indeterminate. So, these uses do not pose a special problem to the Russellian theory, and to the other theories that predict indeterminacy.

Neale replies: "I suggest *simple* rather than *complex*" (2004, p. 171). According to Neale (2004, p. 171), the utterance of the second sentence in (5) is true iff *there is a unique x such that guy (x) ∧ x = a, and x is drunk* (where *a* is an <e> type variable the value of which is assigned by a contextually determined assignment).[15] This is what Neale calls "the Gödelian completion" of the DD. Indeed, this demonstrative completion of the description is the most natural candidate for completing the description in the case of referential uses. The completion of the DD 'the guy' is not the guy *I am looking at*, or the guy *on that stage* or any other completion equally implausible, but rather the guy *which is identical to that* [where 'that' stands for the guy that the speaker intends to refer to]. The Russellian theory, Neale concludes, faces no underdetermination problem for referential uses, as the essential characteristic of referential uses (i.e. that the speaker intends to refer a particular individual, the one she has in mind) provides the most plausible completion of referentially used incomplete DDs. Indeed, this proposal shows how the Russellian can avoid the underdetermination problem in the case of referentially used incomplete DDs. Moreover, it should also be an attractive solution for the Referentialist (at least to a certain extent), in as much as it gives referential uses a semantic treatment.[16]

Neale (2004) discusses his proposal in the context of his "external" approach to QDR and to incomplete DDs, and Neale (2000) explicitly rejects the Stanley and Szabó approach. However, we could equally well discuss it in conjunction with Stanley and Szabó's (2000a) theory of nominal completion introduced above, implemented here in the Heim and Kratzer semantic framework. That is indeed a departure from Neale's original proposal. Nevertheless, the implementation of Neale's proposal I present in what follows is inspired in his suggestion concerning the correct truth-conditions of utterances of sentences containing referentially used DDs.

According to Stanley and Szabó, the LF of the second sentence in (5) is:

$[_{S}\ [_{DP}\ [_{DET}\ \text{The}]\ [_{CN}\ \text{guy, f(i)}]]\ [_{VP}\ \text{is drunk}]]$

According to Neale, we should think of the completion of the incomplete DD 'the guy' used referentially as not realized descriptively, but *demonstratively*. In particular, we could take the value of 'i' to be precisely the individual the speaker intends to refer to, and the value of 'f' to be the identity relation. Let us calculate the semantic value of the utterance of the sentence. Under the contextually determined assignment a, we get:

a(f) = identical to
a(i) = *o*, the individual that c_A intends to refer to

So, we get:

$||[_{CN}\ \text{guy, f(i)}]||^{w,a} =$

[15] Neale's (2004, p. 171) exact formulation of the truth-conditions of (5) in a semi-formal language in which a Russellian generalized quantifier '*the*' is introduced is the following: [*the* x: guy (x) ∧ x = *a*] x is drunk.
[16] However, see Devitt's (2007, pp. 28-31) discussion of Neale's proposal.

$= \lambda x_{<e>}.1$ iff x is a guy and is a(f) (a(i)) in w =
$= \lambda x_{<e>}.1$ iff x is a guy and x = *o*

Therefore:

$||[_{DP} [_{DET}$ The$] [_{CN}$ guy, f(i)$]]||^{w,a} =$
$= ||$the$||^{w,a}(||[_{CN}$ guy, f(i)$]||^{w,a}) =$
$= [\lambda f_{<e,t>}.[\lambda g_{<e,t>}.1$ iff there is a unique $x_{<e>}$ such that f(x)=1, and g(x)=1]] ($\lambda x_{<e>}.1$ iff x is a guy and x = *o* in w) =
$= \lambda g_{<e,t>}.1$ iff there is a unique $x_{<e>}$ such that *o* is a guy in w, and g(x)=1

We get the following truth-conditions for the utterance of (5):

$||[_S \ldots]||^{w,a} =$
= 1 iff there is a unique $x_{<e>}$ such that *o* is a guy, and *o* is drunk in w.

A difference between Referentialism and the present proposal is that in cases of a misdescription (i.e. when the intended referent of 'the F' is not an F) Referentialism predicts that the utterance of (5) is *truth-valueless* if the intended individual does not fulfil the description (is not a guy, but say, a robot that looks like a person from a distance). However, on the truth-conditions calculated here, the utterance of (5) is *false* relative to w if the speaker referent is not a guy in w.

We have only considered so far how the Russellian theory could accommodate Neale's suggestion. The same suggestion concerning nominal completion could be used in conjunction with the Fregean theory. On the Fregean theory, the utterance of 'The guy's drunk!' under consideration has the following truth-conditions (I skip the details of the calculation):

$||[_S \ldots]||^{w,a} =$
= there is exactly one $x_{<e>}$ such that x is a guy and x = *o* in w.1 iff *o* is drunk in w.

On the Fregean theory the utterance of the sentence turns out *truth-valueless* when the speaker referent does not fulfil the description (i.e. is not a guy). In this respect it coincides in predictions with Referentialism, as it predicts the existence of truth-valueless utterances of sentences containing DDs used referentially. And, in this respect it differs from the Russellian theory, which predicts that the utterance is false, not truth-valueless.

I conclude by emphasizing the importance of Neale's suggestion (whether implemented in the Stanley and Szabó account of QDR or not). The advantages of this solution are multiple: on the one hand, it shows that referential uses could be treated as semantically relevant (as the Referentialist argues), without having to abandon a unitary account of the semantics of DDs, and without having to postulate that the definite article is ambiguous.[17] On the other hand, it shows that the Russellian theory is not affected by

[17] The ambiguity claim has been questioned by many authors, including Kripke (1977, p. 268), Bach (2004, pp. 226-227) and Sennet (2002).

the underdetermination problem, contrary to what Wettstein and others argue. I have shown how this proposal could be implemented in a standard framework for truth-conditional semantics such as the one proposed in Heim and Kratzer (1998), and how it fits well with the popular account of nominal completion proposed in Stanley and Szabó (2000a).

Concerning alternative theories of DDs, I have shown in section 4 that the Stanley and Szabó account of nominal completion could be extended to apply to the Fregean theory as well. Subsequently, I have argued that Neale's proposal concerning the completion of incomplete DDs used referentially could be extended to defend the Fregean theory from the objection that it faces an underdetermination problem for these uses.

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