Paul Elbourne, *Definite Descriptions* (Oxford Studies in Semantics and Pragmatics 1). Oxford: Oxford University Press, 2013. Pp. ix + 251.

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This book advocates a Fregean theory of definite descriptions (on which they denote individuals, and presuppose existence and uniqueness), with the special twist (not entirely without precedent, as explained in Chapter 3, footnote 8) that they obligatorily contain a silent situation pronoun, providing a situation to which uniqueness is relativized. According to Elbourne, *the cat* has the following syntactic structure:

(1) [[the cat] s_1]

The denotation of this expression depends on the interpretation of the pronoun s_1, determined by an assignment function g, which assigns the situation pronoun to a particular situation. As long as there is exactly one cat in $g(s_1)$, then (1) denotes that cat; otherwise (1) fails to denote anything. Like the pronouns we are familiar with, this situation pronoun can be free or bound. This theory has all of the empirical advantages over Russellian approaches that Fregean theories in general have (dotted throughout the book and emphasized in Chapter 8, 'Existence entailments'), and certain additional virtues deriving specifically from the presence of the situation pronoun, including ways of dealing with the referential/attributive distinction (Chapter 5), donkey anaphora (Chapter 6), a modality-related phenomenon that Elbourne labels 'going back' (Chapter 7), and so-called 'incomplete' descriptions (Chapter 9). I will begin by summarizing the main achievements (pertaining to the referential/attributive distinction, donkey sentences, explicit quantification over worlds, projection through possibility modals, and 'incomplete' descriptions), and then turn to critical remarks mainly pertaining to the earlier chapters.

Let us begin with Donnellan's (1966) 'referential' vs. 'attributive' distinction. As Elbourne discusses in Chapter 5, something like this distinction arises under this approach from the fact that the situation pronoun (e.g. s_1 in (1)) can be either free or bound. Take the sentence *The murderer of Smith is insane*. If the situation variable is interpreted like a referential pronoun (not bound within the sentence) and linked for example to the speech situation, in which the alleged murderer is visible and on trial in a courtroom, then we have the referential reading, on which the proposition expressed concerns a particular individual. On the other hand, the situation pronoun can be bound by Elbourne's situation-binding operator ς, yielding a proposition that

holds in a situation *s* if the unique murderer of Smith in *s* is insane in *s*. This sentence is, then, not about a particular individual, but whoever the murderer turns out to be. Both the referential and the attributive uses are of type *e* on this view, so the result is not 'too attributive', as Russell's theory is, but it is also not 'too referential', like Frege's original theory or Strawson's.

In Chapter 6, Elbourne shows that an adequate semantics for donkey-anaphoric definite descriptions can be achieved without dynamic semantics using covert situation-pronoun binders and situation parameters in the lexical semantics of quantificational determiners and adverbs. As he discusses in Chapter 10, the treatment of definite descriptions is very much like the treatment of pronouns in his previous book (Elbourne 2005), and the results for definite descriptions are parallel to those achieved earlier for pronouns (for better or worse).

In Chapter 7, Elbourne discusses sentences which seem to demonstrate that natural languages have 'explicit quantification over worlds' as Cresswell (1990: x) puts it, or that 'natural languages have the full expressive power of object language quantification over situations' as Kratzer (2010: Section 5) puts it. Examples thought to illustrate this are as follows:

(2) If the economic climate had been favourable, it would have been desirable that some who are not actually rich but would then have been rich be poor.
(3) If you had written some poems and a novel and people had rumoured that you hadn't written the novel, you would be upset.

The problem is that the nature of the desire in (2) or the rumor in (3) depends on a counterfactual state of affairs. The sentence takes one step away from the actual world by considering a counterfactual state of affairs, and one step further with the desire or rumor as the case may be, and then 'goes back' to the counterfactual scenario, hence the name. Elbourne says that '[t]here is no way that a system that used only world binding in lexical entries could achieve this: no such lexical entry for *if* . . . could reach around, as it were, and insert one of its own world variables into the middle of the quantification over a different set of worlds. Hence the need for situation or world variables in the syntax, or something with equivalent power' (p. 144). Elbourne's system has situation variables in the syntax, and with it, he shows how an example like (3) would work.

As discussed in Chapter 8, Elbourne's Fregean theory, unlike Russellian theories, correctly predicts that the following sentences do not mean the same thing:

(4) It's possible that the ghost in Hans's attic is being noisy.
(5) It's possible that there is exactly one ghost in Hans's attic and it is being noisy.

In fact, (4) commits the speaker to the existence of a ghost while (5) does not. In Chapter 8, Elbourne addresses some objections that have been made to this argument against the Russellian view and provides a response.[1]

Finally, Elbourne's theory deals well with 'incomplete' descriptions. As Elbourne describes in Chapter 9, Strawson (1950) objected to the notion that definite descriptions carry a uniqueness implication, pointing to sentences like *The table is covered with books*, which certainly do not imply that there is exactly one table. Relativizing definite descriptions to situations deals immediately with that objection in its most raw form, and Elbourne argues that this particular approach to incompleteness has an empirical advantage over four competing approaches, having to do with the following kind of contrast, where small capital letters indicate downstressing:

(6) In this village, if a farmer owns a donkey, he beats the donkey and the priest BEATS THE DONKEY too.
(7) In this village, if a farmer owns a donkey, he beats the donkey and the priest BEATS THE DONKEY HE OWNS too.

Example (6) implies that the priest of the village beats the donkey the farmer owns (a strict reading), while (7) can imply that the priest beats his own donkey (so it has both strict and sloppy readings). Elbourne argues that his own system does not generate a sloppy reading for (6), while the competitors do.

Overall, this theory thus meets an impressive set of subtle targets, and sets a new standard for a theory of definite descriptions. Contenders for a better theory of definite descriptions that come in the future ought to do as well.

A less solid contribution to the field comes from the chapter on presupposition (Chapter 4). Here Elbourne deals with presupposition filtering in conditionals through binding of the situation variable in the definite description, implemented via a Kratzerian treatment of conditionals along with covert operators in the syntax. The theory of presupposition projection here is quite radical, and though it accounts for some subtle data (assuming a set of rules telling us where the covert operators can occur, which Elbourne does not provide), it also raises questions about a number of well-known issues regarding presupposition projection:

- Why does *John has children and all of his children are bald* lack a presupposition while *All of John's children are bald and John has children* is infelicitous?
- Is there anything guaranteeing that an indefinite inside the scope of a negation will not be able to serve as an antecedent for an anaphor outside the negation, as in e.g. *I didn't see a movie last night. The movie looked boring* (on the narrow-scope reading for the indefinite)?
- What about other presupposition triggers? This approach seems quite specific to definite descriptions and pronouns. Wouldn't one in principle prefer a more general account? Indeed, in his final summary, Elbourne

admits that 'much more work will have to be done to see how far it can be generalized' (p. 231).

- How about the presuppositions of quantified sentences, as in *Every nation cherishes its king* and *A fat man is riding his bicycle* (Heim, 1983), over which many presupposition theorists have torn out their hair?
- Where does this theory stand with respect to the 'proviso problem'? What presuppositions are predicted for e.g. *If John flies to Toronto, his sister will pick him up from the airport* and *If John is a scuba diver, hell bring his wetsuit*?
- Elbourne suggests (p. 66) treating disjunction in terms of conditionals, noting the equivalence between boolean disjunction [$\ulcorner P \vee Q$] and material implication [$P \rightarrow Q$]. Since [$\ulcorner P \vee Q$] is equivalent to [$Q \vee \ulcorner P$], this would seem to predict that *Either Mary is allergic to peanuts too, or John is not allergic to peanuts* should be acceptable in the absence of a prior mention of peanut allergies. Why isn't it, given the acceptability of *If John is allergic to peanuts, then Mary is allergic to peanuts too*?
- In Chapter 8, in order to account for the fact that *Hans wants the ghost in his attic to be quiet tonight* presupposes that Hans believes that there is a ghost, it is suggested (p. 170) that a relation variable in the syntax lodged under a fiction operator FIC provides Hans's belief worlds to the situation binder responsible for the situation pronoun in the definite description. What principles constrain the values that this relation variable might take on? Would this theory correctly predict that *Hans hopes there's a beer in his fridge and wants it to be cold* makes no presupposition that Hans believes there is a beer in his fridge?

Since these issues have been dealt with previously in the literature on presupposition projection, a new theory of presupposition projection ought to be able to deal with them at least as successfully if it is to be considered a clear advance over the status quo.

The central claim of the book does not depend crucially on this theory of presupposition projection, however. While the use of situation variables does open up the possibility of this approach, Elbourne need not have taken the opportunity to pursue it; he could in principle have combined his theory of the definite article with any number of existing theories of presupposition projection (dynamic or static). Until Elbourne's ideas on this are more fully developed, I would keep my investments in more traditional approaches to presupposition projection even if I were to adopt the idea of a situation pronoun in the syntax.

Before Elbourne's theory can be combined with a theory of presupposition projection that builds on trivalence, however, some technical issues related to partiality need to be dealt with. (This would be a more minor complaint if so much

of the book were not taken up with the technicalities per se.) The author stipulates two rules for λ-conversion, one that applies to λ-expressions without any domain condition, plus the following:

(8) λ-Conversion II
$\lambda u_\tau : f(u) = 1 \,.\, [\ldots\ \lambda v_\tau : g(v) = 1 \,.\, M(u)\ \ldots]$
$= \lambda u_\tau : f(u) = 1 \,\&\, g(u) = 1 \,.\, [\ldots\ [u/v]\mathrm{M}\ \ldots]$

This will apply in simple sentences like *The cat grins*, for which his composition rules 'combine to give us the following line', as he puts it (p. 50):

(9) $\lambda s \,.\, [[\lambda x \,.\, \lambda s' \,.\, x$ grins in $s'](\lambda s'' : s \in D_s \,\&\, \exists!x\ x$ is a cat in $s'' \,.\, \iota x\ x$ is a cat in $s'')](s))](s)$

λ-Conversion II will serve to transfer the domain condition on the inner λ-expression to the outermost one. Elbourne explains his rationale as follows: 'If, in our semantic calculation, we reached the stage shown in [(9)] and did not have something like λ-Conversion II available, it would be entirely unclear how to proceed, since there is no way of telling whether or not the situations *s* are going to have exactly one cat in them, since "*s*" is a bound variable' (p. 51). By 'proceed', it seems that Elbourne means 'reduce the expression'.

Here, Elbourne is grappling with an inconvenience that he inherits from Heim & Kratzer (1998), and it is laudable that he does so, but his solution is conceptually problematic as far as I can see. One should never have to stipulate a λ-conversion principle; the validity of λ-conversion should follow from the semantics of the language in question. In standard typed lambda calculus, the syntax and semantics of λ-expressions is defined as follows (Dowty, Wall & Peters 1981: 100; D_τ is the domain of objects of type τ):

(10) If α is an expression of type τ and u is a variable of type σ, then $\lambda u[\alpha]$ is an expression of type $<\sigma,\tau>$, and:
$[\![\ \lambda u[\alpha]\ ]\!]^{M,g} =$ the function f such that $f(d) = [\![\alpha]\!]^{M,g[d/x]}$ for all $d \in D_\tau$

Note that here we are treating the λ symbol as part of a formal OBJECT LANGUAGE. It appears in denotation brackets on the left-hand side, rather than in the meta-language, on the right-hand side. Given the semantics of λ-expressions as defined here, it TURNS OUT that an expression of the form $\lambda u[\phi](\alpha)$ is EQUIVALENT to an expression of the form $[u/\alpha]\phi$, in the sense that they have the same denotation with respect to all models and assignment functions. The λ-conversion principle is thus a CONSEQUENCE of the semantics of the language of lambda calculus, not a principle that needs to be stipulated.

In the Heim & Kratzer (1998) framework, denotations are assigned to natural language expressions directly, in the style of Montague's 'English as a Formal Language' (EFL), rather than by the use of a logic as an intermediary representation

language and translating the English expressions into logical expressions, as Montague does in 'The proper treatment of quantification in ordinary English' (PTQ). The 'λ' symbol that appears on the right-hand side of statements assigning denotations to natural language expressions is, therefore, a symbol of an informal meta-language, not a formal object language. It could perhaps be seen as a shorthand for 'the function *f* such that ...' as we saw in the semantics for λ above. When λ-expressions are used in this way, there is no semantic rule like (10) that can be used to derive a λ-conversion principle, but still, it makes no sense to stipulate one; we must rely on our intuitive understanding of what these formulas mean in order to determine whether one expression is equivalent to another. If we have to stipulate λ-conversion principles then we do not already know what our meta-language expressions mean.

The inconvenience that Elbourne is experiencing stems from the use of partial functions as in Heim & Kratzer (1998), and is more general: If *f* has a non-trivial domain condition and it is not known whether *x* satisfies it, then it is not known whether *f*(*x*) is an expression that designates anything. (Such problems were previously discussed by logicians including Tichý (1982) and Lapierre (1992); see Haug (published online 24 August 2013) for further discussion.) Suppose *f* is, for example, 'diameter', and *x* is a bound variable that ranges over various physical objects, which may or may not be the kinds of things that have diameters. Whether *f*(*x*) is a meaningful expression depends on what *x* is assigned to. If *x* is assigned to a triangle, then *f*(*x*) is supposed to pick out the diameter of a triangle, which is nonsense. So the meaningfulness of an expression depends on the assignment function. When we are building up a compositional interpretation of a sentence, we need to be able to describe the meaning independently of what assignment will be used. The assignment-dependence that comes with partial functions holds whether or not our partial functions are described via lambda expressions or not, and whether we attempt to reduce the expression or not, so the solution does not lie in λ-conversion per se.

A clean way of dealing with this inconvenience is to use something like Beaver & Krahmer's (2001) PTQ-style framework in which natural language expressions are translated into expressions of a three-valued type logic with an explicitly stated syntax and semantics. Definedness restrictions can be put in the scope of their partiality operator ∂, which is defined so that $\partial(\phi)$ denotes 'undefined' when ϕ is not true. The ∂ formula is not a constituent of the λ-expression as in Heim & Kratzer's style; rather, it is conjoined with other expressions of type *t*. Thus, λ-conversion works as usual and there is no question as to whether a function can be applied to an argument. Unfortunately, the Beaver & Krahmer (2001) framework does not support undefined types other than *t*, so for Elbourne's purposes, it would have to be amended to include arbitrary undefined types. For all types τ, let $\#_\tau$ be the 'undefined' value of type τ, as Haug (published online 24 August 2013)

suggests. Now we may stipulate the following syntactic and semantic rules for our logic:

(11) If ϕ is an expression of type t and u is a variable of type σ, then $\iota u[\phi]$ is an expression of type σ, and:
$[\![\iota u[\phi]]\!]^{M,g} = d$ if $\{d' \mid [\![\phi]\!]^{M,g[d'/x]} = 1\} = \{d\}$; $\#_\sigma$ otherwise.

(12) If α is an expression of type σ and ϕ is an expression of type t, then $[\partial(\phi) : \alpha]$ is an expression of type σ, and:
$[\![[\partial(\phi) : \alpha]]\!]^{M,g} = [\![\alpha]\!]^{M,g}$ if $[\![\phi]\!]^{M,g} = 1$; $\#_\sigma$ otherwise.

The syntax and semantics of λ-expressions can remain as in (10).

With this kind of technology, the expression $[\partial(\exists!x[\text{CAT}_{s''}\ (x)]) : \iota x[\text{CAT}_{s''}\ (x)]]$ can be treated as a term of type e. This term can be carried unproblematically through a series of λ-conversions. Actually, the definedness condition is redundant in this case, since we have a definition of the ι operator that yields $\#_e$ in case existence and uniqueness are not satisfied. (It is not clear why Elbourne felt the need to include this condition, given that he understands the ι symbol essentially in this way.) But the point is more general: Adopting a Beaver-&-Krahmer–style approach would have dealt with the technical inconvenience motivating Elbourne to stipulate extra λ-conversion rules. It would simultaneously have provided him with the option for a more convincing (though less original) story on presupposition projection. I would like to advocate the ∂-operator as a general practice in semantics when partial functions are used for presupposition. It provides a clean and easy way to give a fully-reduced and therefore concise characterization of an expression's truth and definedness conditions whose meaningfulness is not assignment-dependent.

Finally, let me comment on Elbourne's analysis of predicative definite descriptions in Section 5.4. He treats the individual-denoting use of the definite article as basic, and derives the predicative, type <*e*,*t*> use with Partee's (1986) 'ident' type-shifter, which takes an individual *j* to the property of being *j*. In support of this move, he points out that definite descriptions can occur as an argument of *consider*, as in *Mary considers that the prettiest island*, along with adjectives (*Mary considers that pretty*). What Elbourne leaves out of the discussion is that, as pointed out by Winter (2001) among others, *consider* does not allow proper names or pronouns such as *him* and *you* in that position. This would suggest that an 'ident' shift is not generally available and that definite descriptions are, as Fara (2001) suggests, fundamentally predicative. Further evidence for this conclusion is given in Winter (2001) as well as my own work with David Beaver (Coppock & Beaver 2012, 2014). Elbourne provides a number of valid criticisms of Fara's proposal, but I would like to suggest that these are overcome in the version of the approach that we have developed. The main problem is that Fara's analysis of definite descriptions in argument (e.g. subject) position is effectively Russellian. This means, for instance, that it fails to deliver a

difference in meaning between (4) and (5) above. On our analysis (motivated by 'anti-uniqueness effects' as in *Anna didn't give the only invited talk; Bill gave one too*) definite descriptions are fundamentally predicative, as on Fara's view, but they acquire existential import in argument position either through existential closure, as Fara assumes, or through an IOTA-shift, which converts a predicate into its unique satisfier. The IOTA-shift is preferred, so our analysis boils down to a Fregean view, such as Elbourne advocates, in all of the cases that he considers.

In summary, this book is an important contribution to the literature on definite descriptions, and sets a new standard for the discussion on this topic. A number of technical and empirical issues remain to be worked out, particularly when it comes to the treatment of partiality and presupposition projection, but there is much to be learned from this work.

NOTE

1. This chapter also includes a section on Schoubye (2013), who discusses a parallel pattern with indefinite descriptions and uses this to argue that indefinite descriptions come with existence presuppositions. The section on Schoubye is remarkably catty in tone, and attacks him from every angle, to the point of inconsistency. This is quite puzzling, because Schoubye essentially defends a dynamic version of the Fregean view. One also wonders what accounts for the omission of Schoubye's clearly relevant work in Sections 4.6 (Schoubye 2009) and 5.2 (Schoubye 2012).

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François Grosjean & Ping Li et al., *The Psycholinguistics of Bilingualism*. Malden, MA & Oxford: Wiley-Blackwell, 2013. Pp. v +248.
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The book *The Psycholinguistics of Bilingualism* is intended primarily for undergraduate and first-year graduate students. The book covers a wide range of topics, including methodologies used in bilingualism research. The subdisciplines presented include both those that have been extensively researched as well as some that to date have been investigated less. These are just some of the strengths of the book.

The introductory first chapter includes a presentation of the aims of the book, chapter outlines and a general introduction to the field of bilingualism. The following nine chapters are divided into four parts: 'Spoken language processing', 'Written language processing', 'Language acquisition', and 'Cognition and the bilingual brain'. Both the primary authors – François Grosjean and Ping Li – and other