

主教句型的真正問題

陳湘韻*

摘 要

描述性理論（或稱 E-型理論）是對「驢子代詞」（donkey anaphora）的一種分析（如：伊凡斯（Evans，1977），韓牧（Heim，1990），尼爾（Neale，1990））。此徑路常為人詬病的一點是無法解釋「主教句型」（bishop sentences）。艾勃（Elbourne，2005）提出一套情境語義學（situation semantics）式的描述性理論，並宣稱該理論不僅能解決傳統描述性理論在說明主教句型時的困難，還能解釋另一種新的主教句型。本文旨在質疑艾勃的分析。我指出艾勃的解法不但使用了未受約束的指代詞（unbound anaphora），且其對新的主教句型的說明也並不適切。

關鍵詞：驢子代詞、E-型理論、情境語義學

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The Real Problem of Bishop Sentences

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Abstract

Bishop sentences such as “If a bishop meets a bishop, he blesses him” have long been considered problematic for the descriptivist (or E-type) approach of donkey anaphora (e.g. Evans, 1977; Heim, 1990; and Neale, 1990). Elbourne (2005) offers a situational descriptivist analysis that allegedly solves the problem, and furthermore extends its explanatory coverage to bishop sentence with coordinate subjects. However, I throw serious doubts on Elbourne’s analysis. Specifically, I argue that the purported solution is committed to the use of unbound anaphora, and it cannot sustain the claimed empirical adequacy.

Keywords: donkey anaphora, E-type theory, situation semantics

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The Real Problem of Bishop Sentences

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I. Introduction

Consider the following *bishop sentences*:

- (1) If a bishop meets a bishop, he blesses him.
- (2) # If a bishop and a bishop meet, he blesses him. (Elbourne, 2005: 153)

While (1) and (2) *prima facie* describe exactly the same scenario, one's judgments regarding their respective acceptability diverge: (1) is perfectly fine but the oddity of (2) is hard to miss. Though the contrast is solid, it is unclear what explains this disparity.

The puzzle goes well beyond variation in speaker's felicity judgments and is of interest to philosophers of language and linguistics since at least Geach (1962), Evans (1977), and Cooper (1979). Stripped down to its bare bone, a bishop sentence is a conditional where the two noun phrases in the antecedent are identical and play semantically symmetric roles. More importantly, the two pronouns in the consequent are both donkey anaphora—pronouns that are bound in semantics but not syntax.¹

¹ The conventional taxonomy divides pronouns into two categories: those that are directly referential (e.g. "She works very hard.") and those that are anaphoric (e.g. "Every boy likes his mother."). The former are analyzed as free variables and pick up as their referents the salient individuals in the context; the latter are treated as bound variables and depend on their antecedents

There are two competing ways to analyze donkey anaphora. One is to preserve the traditional notion of binding at the cost of classifying donkey pronouns as exceptional: they are not variables but disguised definite descriptions. This is the descriptivist (or E-type) approach (e.g. Evans, 1977, 1980; Neale, 1990; Heim & Kratzer, 1998; among many others). The other is to revise the classical notion of binding by extending the binding scope and treat donkey pronouns, on a par with anaphoric pronouns, as bound variables. This is the dynamic approach (e.g. Kamp, 1981; Kamp & Reyle, 1993; and Groenendijk & Stokhof, 1991).

According to the descriptivist theorists, donkey pronouns are disguised definite descriptions. Following Russell (1905), uniqueness is written in the semantics of definite descriptions. The bishop sentence (1), however, presents a pressing worry. Since “meet” depicts a symmetric relation, any description applicable to one bishop is equally applicable to the other: “the bishop” is definitely not uniquely-denoting, and neither is “the bishop that meets a bishop.” Since no differentiating descriptions are available, there should be no anaphoric readings.

The prediction is of course mistaken, which creates the so-called “problem of indistinguishable participants.” (Heim, 1990: 148)² The

for their meaning. According to this traditional view, anaphora depends on quantificational or syntactic binding, hence a pronoun is either anaphoric and syntactically bound, or is directly referential and syntactically free. However, donkey pronouns (e.g. “Every farmer who owns a donkey beats *it*.”) are problematic for this dichotomy: they are anaphoric but syntactically free, as they lie outside the syntactic binding scope of their antecedents.

² While description-based theories are generally called E-type theories in the literature, Elbourne draws several distinctions within the description-theoretic approach. He holds that strictly speaking, Evans (1977, 1980) is the only E-type account proper; Cooper (1979), Heim (1990), Neale (1990), and Heim & Kratzer (1998) are all instances of what he calls the D-type analysis. Evans is singled out because donkey anaphora is *not* analyzed as *semantically equivalent* to

problem is exacerbated, however, when (2) is added to the picture. Why is anaphoric reading available for (1) but not for (2)? After all, the bishops involved in both examples seem equally indiscernible descriptively. What explains the asymmetry? This is the real problem of bishop sentences.

In *Situations and Individuals*, Elbourne (2005) argues for a new descriptivist treatment that purports to not only explain the felicity of (1) but also the anomaly of (2). By contrast, dynamic theories, while having no difficulty accounting for (1), do not predict the oddity of (2). If Elbourne's claim proves true, the descriptivist approach gets a significant boost. It would mean that the descriptivist approach is not only adequate but empirically superior. Moreover, since Elbourne's ultimate claim is that pronouns, definite descriptions, and proper names share a common syntax and semantics, if his theory holds good, it would undermine the direct reference theory and the related doctrine that proper names are rigid designators.

My goal is to demonstrate that Elbourne's analysis is problematic. Underlying the proposed solution is a commitment to the use of unbound anaphora, and the principle that allegedly explains the apparent asymmetry between (1) and (2) does not stand scrutiny. The rest of the paper is structured

definite descriptions; rather, they are treated as referential expressions whose referents are nevertheless fixed by some descriptions. D-type theories are then further divided based on two criteria: (a) the degree of similarity between donkey pronouns and definite descriptions—whether the two are equivalent at the syntactic level, besides being equivalent at the semantic level; (b) the means by which the descriptive content is recovered—whether or not there is an explicit algorithm. The result is thus a four-way classification of D-type theories: syntactic and contextual (e.g., Heim & Kratzer (1998)), syntactic and linguistic (e.g., Elbourne (2005)), semantic and contextual (e.g., Heim (1990)), and semantic and linguistic (e.g., Neale (1990)). Note, however, that the problem of indistinguishable participants is a problem common to all description-based theories, E-type and D-type alike. Because the fine-grained distinction between E-type and D-type is orthogonal to my central argument, I will set it aside and simply address Elbourne's account as a version of the descriptivist theory to avoid confusion and unnecessary proliferation of terminology.

as follows. Section 2 outlines Elbourne's treatment of bishop sentences and his response to a worry raised by Kroll (2008). My own counterarguments are presented in Section 3, and I discuss bishop sentences with coordinate subjects in Section 4.

II. The Situational Descriptivist Account

For any descriptivist, the availability of anaphoric readings of donkey pronouns hinges on the availability of some uniquely-denoting descriptions.³ At a very general level, Elbourne's treatment contains two central theses:

Covert description as NP-deletion: a donkey pronoun is a morphological variant of the definite article "the" followed by a covert NounPhrase.

Semantics by means of refined situations: the analysis of conditionals involves quantification over Kratzerian situations.⁴

Here is how the combination of NP-deletion theory and a refined situation semantics supposedly solves the problem of indistinguishable participants. According to the NP-deletion theory, (3a) is analyzed as (3b):

³ Elbourne's proposal is an admirable attempt to combine the respective merits of two preceding, influential descriptivist analyses. The NP-deletion thesis is a theoretical descendant of Neale (1990); the thesis of refined situations is an heir of Heim (1990). Like Heim, Elbourne resorts to minimal situations and their extensions to neutralize the unwanted uniqueness with which "the" is associated in conditionals. Like Neale, Elbourne provides an explicit algorithm that computes syntactic information from the antecedent clause to the desired definite description that the pronoun is equivalent to.

⁴ Following Kratzer (1989), Elbourne takes situations to be "natural language metaphysics equivalent to states of affairs" in the sense of Armstrong (1978). Elbourne's situation semantics departs from previous work by Berman (1987), Kratzer (1989), and Heim (1990) by being fully compositional and more fine-grained. Quantificational adverbials such as "always," "usually" and "rarely" are part of the lexicon and do not trigger syncategorematic rules for quantification.

(3a) If a bishop meets a bishop, he blesseshim.

(3b) If a bishop meets a bishop, [he ~~bishop~~] blesses [him ~~bishop~~].

The pronouns “he” and “him” are equivalent to the definite article “the”; the relevant description is simply a copy of the very minimal NP antecedent, i.e. “bishop,” which undergoes deletion in the process of phonological realization to avoid repetition. Clearly the descriptive content so recovered is not rich enough to tell the bishops apart. Elbourne argues, however, that once situations are brought into play, it is possible to form predicates that differentiate the two bishops and so the anaphoric readings are licensed.

Take (4a), the core of the antecedent in (3a), whose LF-syntactic structure is (4b):

(4a) a bishop meets a bishop

(4b) [[a bishop] [λ_6 [[a bishop] [λ_2 [t_6 meets t_2]]]]]]

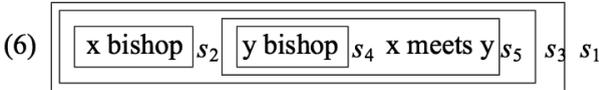
According to the situations semantics Elbourne sets out, the LF (4b) has the following denotation:⁵

(5) λs_1 . there is an individual x and a situation s_2 such that s_2 is a minimal situation such that $s_2 \leq s_1$ and x is a bishop in s_2 , such that there is a situation s_3 such that $s_3 \leq s_1$ and s_3 is a minimal situation

⁵ Elbourne offers a compositional semantics—including the ontological ingredients (due to Kratzer (1989)), rules of derivation (from Heim and Kratzer (1998)), and lexical entries with specific reference to situations. Using standard lambda notation in formal semantics, he provides step-by-step, detailed calculations of a number of key examples in the book. Since my argument does not rest on the lengthy derivation of the truth-conditions of (4b), but only on some special features of the analysis, I spare the readers the majority of the situation-semantic technicalities and present here just the result of the derivation. Interested readers are referred to Elbourne (2005), in particular section 4.4.1, for the full details.

such that $s_2 \leq s_3$ and: there is an individual y and a situation s_4 , such that s_4 is a minimal situation such that $s_4 \leq s_3$ and y is a bishop in s_4 , such that there is a situation s_5 such that $s_5 \leq s_3$ and s_5 is a minimal situation such that $s_4 \leq s_5$ and x meets y in s_5 .⁶

Granted that (5) is almost impossible to parse without some sort of visual aid, Elbourne suggests that we use an aide-mémoire, such as (6), when processing the truth conditions:



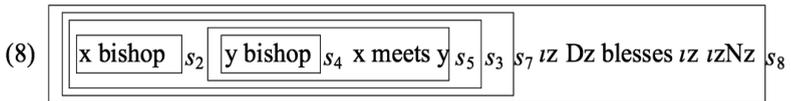
Given the situation structures, Elbourne contends that the bishops can be differentiated. As x and y are not treated symmetrically in the syntactic representation, they are not interpreted in exactly the same way in situations. Specifically, y 's bishop-hood, but not that of x , is a constituent of s_5 . Even though the two individuals are both bishops and the relation expressed by “meet” is symmetric, separating predicates become available once due attention is paid to how they are located in the situation structures. True, NP-deletion alone does not provide enough information, but suppose that the descriptive content of the pronouns “could be any property or relation recoverable from the context,” (Elbourne, 2005: 149) then reference to the situation structures as, for instance, specified in (5), will generate a pair of distinguishing predicates. Specifically, for any situation containing two particulars s_2 and s_5 , we can

⁶ Here is what I think (5) amounts to in predicate logic: $\forall s_1 [(\Box s_2(s_2 \leq s_1, x \text{ is a bishop}) \wedge \Box s_3(s_2 \leq s_3 \leq s_1) \wedge \Box s_4(s_4 \leq s_3, y \text{ is a bishop}) \wedge \Box s_5(s_4 \leq s_5 \leq s_3, x \text{ meets } y))$

call the bishop whose bishop-hood is not part of s_5 the “distinguished” bishop and the other bishop the “non-distinguished” bishop. The target sentence (7a) is then analyzed as having (7b) as its denotation:

- (7a) If a bishop meets a bishop, he blesses him.
- (7b) λs_6 . for every minimal situation s_7 such that $s_7 \leq s_6$ and $(5)(s_7)=1$, there is a minimal situation s_8 such that $s_8 \leq s_6$ and s_8 is a minimal situation such that $s_7 \leq s_8$ and *the distinguished bishop* in s_8 blesses in s_8 *the non-distinguished bishop* in s_8 .

The situation structure for the entire sentence is provided as below:



For any pair of bishops meeting and greeting each other there are two ways to divide up the individuals and situations: one is to have x as the distinguished bishop, and the other is to have y as the distinguished bishop. (7a) is true if and only if both possibilities are verified. Whoever the distinguished bishop is, he blesses the non-distinguished bishop. The upshot is that despite the failure of standard descriptions to distinguish between the two bishops, their distinct locations in the situation structures is the justification to treat them asymmetrically. So, by appealing to the situational characteristics, one can distinguish between “he bishop” and “him bishop.”

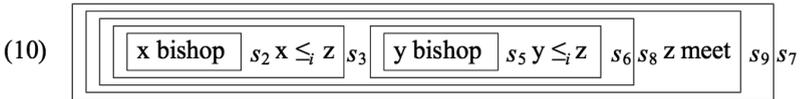
Moreover, Elbourne claims that the new situational descriptivist analysis can correctly predicting the ungrammaticality of sentences such as (9):

(9) # If a bishop and a bishop meet, he blesses him.

Here the bishops have completely identical descriptive content. There is genuinely no way whatsoever to differentiate between them even when situation structures are taken into consideration. Since the uniqueness condition is not met, (9) has no anaphoric interpretations.

To handle bishop sentences with coordinate subjects, or the “intransitive cases”, Elbourne adopts the notion of plurality in Link (1983): A plural individual $a \oplus b$ is defined as the sum of a and b ; \leq_i is the individual part relation: $a \leq_i a \oplus b$ means that individual a is part of the sum of a and b .⁷

For our purpose, it suffices to illustrate the situation structures of the core of (9), i.e. “a bishop and a bishop meet”:



As (10) indicates, there is no situation-related distinction to be made between the two bishops. In the minimal situations s_2 and s_5 of which x and y are a part of respectively, each instantiates the property of “being a bishop”; in the intermediate situations s_3 and s_6 , x and y again instantiate the same property of “being part of the individual sum z .” That is, the two individuals are “embedded in intrinsically and relationally identical situation structures.” (Elbourne, 2010: 77) Whatever content applicable to x is equally applicable

⁷ Given this theoretical background, Elbourne revises his lexical entry for “and” so that it takes two Quantifier Phrases as arguments. The new semantics of “and” is essentially an existential quantifier (because the conjunction of the two Quantifier Phrases forms a plural sum); and accordingly, the lexical entry for the intransitive “meet” is stipulated to take a plural sum only. For details of the necessary revisions, see Elbourne (2005: section 4.4.2).

to *y*, making “he bishop” and “him bishop” descriptively identical through and through. Therefore, (9) is a true instance of indistinguishable participants, and the theory correctly predicts its ungrammaticality.

Now consider the following objection raised by Kroll (2008):

(11) If a bishop talks with a bishop, he compliments him.⁸

The anaphoric reading of (11) is readily available. The nested situation structure of the core of the antecedent is as follows:

(12) $\boxed{\boxed{x \text{ bishop}}_{s_2} \boxed{y \text{ bishop}}_{s_4} x \text{ talks with } y}_{s_5} s_3}_{s_1}$

Kroll invites us to imagine a scenario where there is just one bishop, talking with and complimenting himself. (11) is true in this case, and there is no reason to rule out such a possibility. Hence, (12) is reduced to

(13) $\boxed{\boxed{x \text{ bishop}}_{s_2=4} x \text{ talks with } x}_{s_3=5} s_1$

Elbourne’s account is now in serious trouble. Given that the scenario with a solo bishop should not be precluded and that (11) is felicitous, Elbourne must acknowledge that situations sometimes merge, or that different situation descriptions may turn out to be descriptions of the same situation. But then

⁸ According to Kroll, there are two types of bishop conditionals (in the transitive case) exemplified by the following:

(i) If a bishop talks with a bishop, he blesses him.

(ii) If a bishop talks with another bishop, he blesses him.

The two are not always equivalent. (i) can be true when there is only one bishop who talks and blesses himself, but (ii) cannot be true in the same scenario.

the pair “distinguished” and “non-distinguished” cannot be used, as they are only defined with respect to situation structures that look like (12). If Elbourne insists that these situation structures, even in the case of a solo bishop, are nevertheless just like those depicted in (12), then “distinguished” and “non-distinguished” are defined. However, the theory is then committed to contradictory predication that the same individual is both “distinguished” and “non-distinguished.”⁹

In response, Elbourne (2010) comments that the predicates “distinguished” and “non-distinguished,” as devised in Elbourne (2005), do run into the difficulties that Kroll points out. Nonetheless, it does not follow that some other pair of predicates will not do the trick.¹⁰ For example, two new predicates, as defined below, work perfectly well:¹¹

(14a) distinguished*: an individual x is distinguished* with respect to a situation s iff *either* s is an extension of a situation with the structure of s_1 in (12) and x is distinguished (as originally defined) in s , or x is the only individual in s .

⁹ An anonymous reviewer questions whether (12) is reduced to (13) in the scenario Kroll suggests. The reviewer thinks this is a confusion of logical form and one condition in which a logical form is true. But (12) is not the logical form. Consider (4a): “a bishop meets a bishop.” According to Elbourne, its logical form is (4b): $[[a \text{ bishop}] [\lambda_6 [[a \text{ bishop}] [\lambda_2 [t_6 \text{ meets } t_2]]]]]$. Given the situation semantics detailed in the book, (4b) has (5) as its denotation. Diagrams such as (6) and (12) are offered only as a visual aid to help one process the truth conditions. The reviewer’s comment, however, helps to highlight an important assumption Elbourne makes, that “the inclusion relations among the situations specified in the truth conditions of a sentence very closely mirror the inclusion relations among the syntactic constituents of the sentence.” (Elbourne, 2005: 147) Kroll’s objection, in a nutshell, challenges this alleged parallelism between truth-conditions and syntactic structure.

¹⁰ The dialectic between Kroll and Elbourne’s debate is in fact more delicate. Nothing essential of their discussion is lost in the simplified version that I sketch here, however.

¹¹ The following is from Elbourne (2010: 71-72).

- (14b) non-distinguished*: an individual x is non-distinguished* with respect to a situation s iff *either* s is an extension of a situation with the structure of s_1 in (12) and x is non-distinguished (as originally defined) in s , *or* x is the only individual in s .

Thanks to their *disjunctive* form, these predicates are applicable in both the standard scenarios and the scenario involving just a single bishop. So long as some differentiating descriptions are available, Elbourne can explain the anaphoric reading of (11).

If the availability of anaphoric readings of (11) depends on the availability of some uniquely-denoting descriptions, so long as some differentiating descriptions are available, Elbourne's response is valid, no matter how artificial the descriptions may seem.

III. Dubious Situational Descriptions

Elbourne's treatment of bishop sentences rests on two essential features: (a) predicates characterized by reference to situations, and (b) disjunctive situational predicates. I will argue that each inevitably leads to self-defeating predictions and together evidence the problematic nature of the proposed descriptive analysis.

First, underlying the "solution" to the problem of indistinguishable participants is the availability of differentiating predicates, including the relatively simple ones such as "distinguished" and "non-distinguished," and the complex, disjunctive predicates like "distinguished*" and "non-distinguished*." Crucially, however, is the way the base case "distinguished" is characterized:

For any situation containing two particulars s_2 and s_5 , defined as above, call the bishop whose bishophood is not a constituent of s_5 the ‘distinguished’ bishop. (Elbourne, 2005: 149)

Recall that according to Elbourne, the truth conditions of the target sentence “If a bishop meets a bishop, he blesses him” is

(15) λs_6 . for every minimal situation s_7 such that $s_7 \leq s_6$ and $(5)(s_7)=1$, there is a minimal situation s_8 such that $s_8 \leq s_6$ and s_8 is a minimal situation such that $s_7 \leq s_8$ and *the distinguished bishop* in s_8 blesses in s_8 *the non-distinguished bishop* in s_8 .

Since “distinguished” is really a shorthand for “the bishop whose bishop-hood is not a part of s_5 ,” (15) is just a less verbose version of (16):

(16) λs_6 . for every minimal situation s_7 such that $s_7 \leq s_6$ and $(5)(s_7)=1$, there is a minimal situation s_8 such that $s_8 \leq s_6$ and s_8 is a minimal situation such that $s_7 \leq s_8$ and *the bishop whose bishophood is not a part of s_5* in s_8 blesses in s_8 *the bishop whose bishophood is part of s_5* in s_8 .

To fully mark the problem, I repeat (5) and the structure of the entire sentence below as (17) and (18), respectively, and spell out the core of (16) as (19):

(17) λs_1 . there is an individual x and a situation s_2 such that s_2 is a minimal situation such that $s_2 \leq s_1$ and x is a bishop in s_2 , such that there is a situation s_3 such that $s_3 \leq s_1$ and s_3 is a minimal situation

such that $s_2 \leq s_3$ and: there is an individual y and a situation s_4 , such that s_4 is a minimal situation such that $s_4 \leq s_3$ and y is a bishop in s_4 , such that there is a situation s_5 such that $s_5 \leq s_3$ and s_5 is a minimal situation such that $s_4 \leq s_5$ and x meets y in s_5

$$(18) \quad \boxed{\boxed{\boxed{x \text{ bishop}}_{s_2} \boxed{y \text{ bishop}}_{s_4} x \text{ meets } y}_{s_5} s_3 s_7 \text{ } \exists z \text{ } \text{Dz blesses } z \text{ } \exists z \text{ } \text{Nz}}_{s_8}$$

$$(19) \quad \forall s_7 (s_7 \leq s_6 \wedge (\exists s_2 (s_2 \leq s_7, x \text{ is a bishop}) \wedge \exists s_3 (s_2 \leq s_3 \leq s_7) \wedge \exists s_4 (s_4 \leq s_3, y \text{ is a bishop}) \wedge \exists s_5 (s_4 \leq s_5 \leq s_3, x \text{ meets } y))) \rightarrow \exists s_8 (s_7 \leq s_8 \leq s_6, \text{ the bishop whose bishop-hood is not part of } s_5 \text{ blesses the bishop whose bishop-hood is part of } s_5))$$

The analysis, as it stands, violates the classic constraint on the scope of existential quantification. The existential quantification that introduces the situation s_5 takes place entirely within the scope of the antecedent and does not have scope over the main clause; in the metalanguage interpretation of the main clause, s_6 , s_7 , and s_8 are the only situation variables available for use. The variable s_5 , if it is used in the position as specified in (16) or (19), is *unbound*. So, Elbourne’s account of unbound anaphora in the object language ultimately depends on reference to unbound anaphora in the metalanguage.

One might question if Elbourne is truly committed to the use of unbound anaphora. Those sympathetic to the descriptivist approach may reason as follows. True enough, Elbourne should not have cashed out “distinguished” in terms like “the bishop whose bishop-hood is not a part of s_5 ,”

where s is some free variable. But so long as Elbourne can find a bound variable, the analysis can go through. One such example is to understand “non-distinguished” as “the bishop who is part of SOME situation s that includes his being met by someone whose bishop-hood is not part of s .” Here s is a variable bound by an existential quantifier. Nevertheless, careful examination of the situation structure (18) reveals that no such bound situation variable would be available. As the structure makes clear, s_5 is the only minimal situation where one of the two bishops’s bishop-hood is absent, so any attempt to tell the two bishops apart by this asymmetry must make reference to s_5 .

At this point, the skeptic might object that though s_5 is unbound in (19), there are other ways to produce a formula equivalent to (16) in which s_5 is bound. Consider, for example, (19*) and (19**):

$$(19^*) \quad \forall s_5 \forall s_7 (s_7 \leq s_6 \wedge (\exists s_2 (s_2 \leq s_7, x \text{ is a bishop}) \wedge \exists s_3 (s_2 \leq s_3 \leq s_7) \wedge \exists s_4 (s_4 \leq s_3, y \text{ is a bishop}) \wedge (s_4 \leq s_5 \leq s_3, x \text{ meets } y)) \rightarrow \exists s_8 (s_7 \leq s_8 \leq s_6, \text{ the bishop whose bishop-hood is not part of } s_5 \text{ blesses the bishop whose bishop-hood is part of } s_5))$$

$$(19^{**}) \quad \forall s_7 [s_7 \leq s_6 \wedge \exists s_5 ((\exists s_2 (s_2 \leq s_7, x \text{ is a bishop}) \wedge \exists s_3 (s_2 \leq s_3 \leq s_7) \wedge \exists s_4 (s_4 \leq s_3, y \text{ is a bishop}) \wedge (s_4 \leq s_5 \leq s_3, x \text{ meets } y)) \rightarrow \exists s_8 (s_7 \leq s_8 \leq s_6, \text{ the bishop whose bishop-hood is not part of } s_5 \text{ blesses the bishop whose bishop-hood is part of } s_5))]$$

To be sure, all the occurrences of s_5 are bound; there is not a single unbound variable in these formulas. However, solving the problem of

unbound anaphora by altering the quantificational force of the binder or tinkering its location or both is not only *ad hoc* but clashes with the foundation of situation semantics.

In (19*), the binder of s_5 has universal rather than existential force; plus, it is moved to the very beginning of the formula. This is highly problematic. First, recall that (5) is an integral part of (16), and it is transparent that s_5 receives an existential quantification in (5). Therefore, revising the quantificational force of the binder of s_5 is not viable.

Moreover, (19*) contradicts a core aspect of situation-based semantics—that a conditional is true if and only if all minimal situations verifying the antecedent can extend to a minimal situation that verifies the consequent.¹² This means that, in broad strokes, the formalization of (16) should look something like: $\forall s_7(\varphi \rightarrow \exists s_8\psi)$, where φ and ψ specify the relevant conditions in the antecedent and consequent, respectively. But (19*) is instead $\forall s_5\forall s_7(\varphi \rightarrow \exists s_8\psi)$.

This also explains why (19**) should be rejected. Even though the binder of s_5 is assigned the right quantificational force, as an instance of $\forall s_7(\exists s_5(\varphi \rightarrow \exists s_8\psi))$, (19**) goes against the specific format required by the

¹² Following Lewis's (1975) idea that conditionals involve quantification, Berman (1987) is the first who pioneered a situation-semantic treatment of adverbial quantification. A conditional is analyzed as a tripartite structure involving (i) an adverb of quantification (or Q-adverb), (ii) a restrictor clause p and (c) a nuclear clause q : [Q-adverb, if p , q]. Assume further that Q-adverbs quantify over situations; then, the antecedent of a conditional restricts the situations that a Q-adverb modifies. The truth of a conditional thus depends on whether all the situations that the Q-adverb ranges over (i.e., the restrictor) are extendable to situations that satisfy some other conditions (i.e., the nuclear clause, or the consequent). In other words, if a conditional is of the form 'Always, if p , then q ' it is true if and only if all minimal situations that are p can be extended to a situation that q ; if a conditional says 'Usually, if p , then q ' then it is true iff most minimal situations that are p can be extended to a situation that q . This foundational idea is followed by all subsequent situation-semantic theories.

situation-based approach. As stated earlier, the proper formalization of (16) must take the form of $\forall s_7(\varphi \rightarrow \exists s_8\psi)$, where “ $\exists s_8\psi$ ” is the consequent of the conditional in the scope of “ $\forall s_7$.” But in (19**), “ $\exists s_8\psi$ ” is embedded too deep in the structure—it is in the scope of both “ $\forall s_7$ ” and “ $\exists s_5$.” So, unless there is a major, non-self-defeating overhaul of the assumed treatment of conditionals, the mechanism forbids Elbourne from formalizing (16) as (19**).

Because alternative specifications are not feasible, Elbourne must accept (19) and is hence committed to unbound anaphora. This unintended use of unbound situation variables in the meta-theory is curious. It shows that the best descriptivist account currently available is committed to something dynamic in its very essence. Moreover, it recommends a much more efficient strategy for combatting the lack of uniquely-denoting predicates: simply enrich the bare NP descriptive content with the very minimal situation in which an individual is located.¹³

In other words, given the situation structures depicted, “he bishop” is to be expanded as “he/the bishop in s_2 ,” and “him bishop” as “him/the bishop in s_4 .” Since Elbourne takes situations to be “natural language metaphysics equivalent of states of affairs” in the sense of Armstrong (1978), and that “the state of affairs of an actual thin particular instantiating a property is not repeatable,” (Elbourne, 2005: 148)¹⁴ the pair of predicates “being the bishop in s_2 ” and “being the bishop in s_4 ” must be uniquely-denoting already.¹⁵

¹³ One way to articulate the notion of “the very minimal situation in which an individual is located” is this. It means the maximally minimal situation in which an individual has a given property: s is a maximally minimal situation in which x has a property P iff s is a minimal situation in which x has P and there is no situation s' such that $s' \leq s$ and x has P in s' . I thank an anonymous reviewer of an earlier version of the current paper for this helpful suggestion.

¹⁴ This is a paraphrase of Armstrong (1978: 115): “Consider the state of affairs: particular a having

Making use of the very minimal situations such as s_2 and s_4 should appeal to the situational descriptivist. In scenarios with more than one individual, the descriptions are not only uniquely-denoting, but distinguishing, picking out distinct individuals just as intended. In scenarios with just one individual, the descriptions are still well-defined and lead to no contradiction; it will just be that the predicates pick out one and the same individual.¹⁶ Hence, if it is permissible to make use of unbound situation variables in the metalanguage interpretation of the main clause, it is more advantageous for the situational descriptivist to make recourse to the very minimal situations than to engineer pairs of predicates that are extremely complicated.

However, appealing to the very minimal situations for description enrichment would lead to the prediction that intransitive bishop sentences also have anaphoric readings.

(20) # If a bishop and a bishop meet, he blesses him.

the property, F. This state of affairs is not repeatable. It is therefore a particular itself. Particularity taken along with universality yields again particularity.”

¹⁵ It is also helpful to compare and contrast Elbourne’s appeal to situations with that of Heim. Both propose to differentiate the bishops by their situational features, but they differ in how situations contribute to the distinction. For Heim, the pronouns “he” and “him” are identified by distinct functions, and situation structures are used to clarify what the functions range over. The need to interpret both pronouns (i.e. functions), however, obliges Heim to an *ad hoc* domain restriction. For Elbourne, the parallel between the syntactic structure and the situation structure gives his analysis an air of representationalism. The syntactic-semantic interface warrants the distinction between the two indefinites. Since the situations are carved so finely, any indefinite description in its minimal situation denotes uniquely.

¹⁶ The pair of descriptions “being the bishop in s_2 ” and “being the bishop in s_4 ” is no contradiction; moreover, they can be uniquely-denoting, and denote the same individual. Two different uniquely-denoting descriptions can pick out the same individual. For example, “the tallest person” and “the fastest person” can surely co-refer.

$$(21) \quad \boxed{\boxed{\boxed{x \text{ bishop}_{s_2} x \leq_i z}_{s_3} \quad \boxed{y \text{ bishop}_{s_5} y \leq_i z}_{s_6} \quad s_8 z \text{ meet}_{s_9} s_7}}}$$

That s_2 and s_5 are depicted as distinct situations at all should suffice “to construct a definite description which can pick out one of these bishops without being applicable to the other.” (Elbourne, 2005: 156) The pronoun “he” can be construed as “he/the bishop in s_2 ,” and “him” as “him/the bishop in s_4 ”; there is simply no need to look for differences elsewhere in the situation structures. If this is correct, anaphoric readings would become available. That (20) is bad as a matter of fact is left unaccounted for.

The second difficulty concerns Elbourne’s use of disjunctive situational predicates, which is imperative to handle Kroll’s counterexample. Once again, one needs to be cautious about how predicates such as “distinguished*” are defined:

$$(22) \text{ distinguished*}: \text{an individual } x \text{ is distinguished* with respect to a situation } s \text{ iff either } s \text{ is an extension of a situation with the structure of } s_1 \text{ in (12) and } x \text{ is distinguished (as originally defined) in } s, \text{ or } x \text{ is the only individual in } s.$$

It should be clear by now that the first disjunct involves the implicit use of an unbound situation, i.e. variable s_5 , whereas the second disjunct represents some purely numerical property, or information about cardinality.

Now envision a scenario with one lone bishop and consider (23):

$$(23) \# \text{ If a bishop and a bishop are identical, he compliments him.}$$

whose antecedent has the situation structures:

$$(24) \quad \boxed{\boxed{\boxed{x \text{ bishop}_{s_2} x \leq_i z}_{s_3} \quad \boxed{y \text{ bishop}_{s_5} y \leq_i z}_{s_6}}}_{s_8} z \text{ are identical}_{s_9} s_7$$

The situational descriptivist ought to predict (23) to be felicitous. The pair of predicates that can license the anaphoric readings is “distinguished*” and “non- distinguished*.” Any disbelief one might have is quickly dispelled once these disjunctive predicates are put into sharp focus:

(25a) distinguished*: an individual x is distinguished* with respect to a situation s iff *either* s is an extension of a situation with the structure of s_1 in (12) and x is distinguished (as originally defined) in s , *or* x is the only individual in s .

(25b) non-distinguished*: an individual x is non-distinguished* with respect to a situation s iff *either* s is an extension of a situation with the structure of s_1 in (12) and x is non-distinguished (as originally defined) in s , *or* x is the only individual in s .

Of course, these predicates are defined with respect to (23) not because of their first disjunct. After all, (23) simply does not have the right sort of situation structure required. Nevertheless, thanks to their second disjunct, these predicates apply in the present case. It follows that the situational descriptivist theorist should predict (23) to be good. But that’s precisely what Elbourne argues against.

The upshot of the two arguments sketched here is that Elbourne’s proposed analysis has no principled constraint on the use of situations. Building on his general latitude in using unbound situation variables, I argue

that the situational descriptivist theorist has a lot to like about the very minimal situations; liberal use of such situations, however, over-generates for the intransitive cases. On the other hand, disjunctive predicates are mandatory to handle Kroll's original objection, but they too lead to over-generation for at least one special instance of intransitive bishop sentences.

Employing situational features to distinguish among individuals is a dubious business. The underlying difficulty is not so much with devising some situationally-enriched descriptions, but with constructing them in a systematic way. Elbourne embraces full exploitation of situations and is committed to even unbound situations in his delineation of the truth conditions; purely numerical information must also be incorporated into the predicates. Yet once these moves are made, there seems to be no good reason why the intransitive (20) and (23) could not have anaphoric interpretations. The attested asymmetry no longer makes sense and the situational descriptivist theorist has failed to provide a coherent, comprehensive analysis of bishop sentences.

IV. A Puzzle of Coordinate Subjects

My rebuttal thus far is that Elbourne is committed to assumptions that turn on his own thesis. In this section, I turn to sentences with coordinate subjects.

Consider the following:

(26a) If a bishop and a nun meet, he blesses her. (Elbourne, 2005: 145)¹⁷

¹⁷ Here are Elbourne's examples (28) on page 145:

- a. If a bishop meets a nun, he blesses her.
- b. If a bishop and a nun meet, he blesses her.

- (26b) If a bishop and a nun meet, she blesses him.
 (27) ? If a bishop and a priest meet, he blesses him.¹⁸
 (28) # If a bishop and a bishop meet, he blesses him.¹⁹

These examples have variable degree of acceptability. According to Elbourne, despite the fact that they share exactly the same grammatical/syntactic structure, they belong to three completely different categories: (26) are perfectly normal, (27) does not seem so good, and (28) are simply ungrammatical. Crucially, the distinction between (26) and (27) concerns pragmatics, and the contrast between (27) and (28) has to do with *grammaticality*.

Because there is no significant syntactic difference among the three sets of data, analyzing the oddity of (28) as a matter of grammaticality seems surprising. Nonetheless, terminological or verbal disputes are not really my concern here; my focus is on whether Elbourne can coherently sustain the alleged distinctions.

To begin, that (26) has perfectly acceptable anaphoric readings can be easily accounted for from the situational descriptivist theorist's perspective. The NP antecedents "bishop" and "nun" in (26) have distinct descriptive content; moreover, the two gendered pronouns place extra constraint on anaphoric resolution. NP-deletion theory alone is sufficient and there is not even a need to resort to situational predicates.

Elbourne's emphasis is that in both the transitive and intransitive cases, the bishop-nun sentences are perfectly grammatical. The contrast I want to stress in (26) is, however, that the occurrence of pronouns in the main clause need not parallel that of their antecedents.

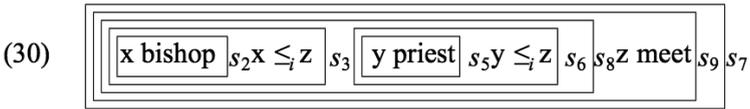
¹⁸ This is essentially a variant of an example made up by Barker & Shan (2008: 31) "If a butcher and a baker meet, he pays him."

¹⁹ Elbourne (2005) also holds that "If a bishop and another bishop meet, he blesses him" is ungrammatical.

On the other hand, like (26), (27) features subjects that are descriptively distinguishable. Given that “bishop” and “priest” are NPs with distinct descriptive content, it should follow that (27) is acceptable: there are two pairs —“he bishop”-“him priest” and “he priest”-“him bishop”—that can validate some anaphoric reading:

- (29) If a bishop and a priest meet, he blesses him.
 a. If a bishop and priest meet, [he ~~bishop~~] pays [him ~~priest~~]
 b. If a bishop and priest meet, [he ~~priest~~] pays [him ~~bishop~~]

There are also abundant situational dissimilarities we can use to differentiate between the individuals:



After all, one individual’s bishop-hood is a constituent of s_3 , and the other individual’s priest-hood is a constituent of s_6 . Surely these situation-based features can be deployed to produce uniquely-denoting descriptions. So, it appears that Elbourne had better predict ambiguity for (27), not ungrammaticality.

Indeed, Barker & Shan (2008) argue that bishop sentences with coordinate subjects are all grammatical, and the oddity with some of them has to do with interpretability. They argue that a sentence such as (27) is problematic in the same way that (28) is: there are various ways to resolve the anaphoric relation, but neither one is better than the other. Without any contextual information or prior assumptions, one is at a loss as to what anaphoric relation should be understood. Hence, infelicity is a result of there

being no way of “deciding which of the possible anaphoric relations is the intended one.” (Barker & Shan, 2008: 31)

In response to Barker and Shan’s argument, Elbourne (2009) acknowledges that (28) is, after all, not ungrammatical; it can even be good given some appropriate context. He insists, however, that (27) and (28) cannot be problematic in exactly the same way. The reason is that varying the anaphoric configuration of the former changes its truth conditions, but doing so with the latter leads to no truth conditional effects. This observation is correct, though it is not clear how important it is. True, altering the anaphoric resolution of (28) leads to no truth conditional difference, but changing the anaphoric resolution of its transitive counterpart results in no such difference either. Similarly, if (27) is defective on the grounds that, absent contextual information, we have no clue about the desired anaphoric interpretation, then the transitive analogue—“If a bishop meets a priest, he blesses him”—is equally ambiguous, and the two possible ways of anaphoric resolution are also not truth conditionally equivalent.

Whatever factors that contribute to the defect or partial defect of bishop sentences with coordinate subjects—truth conditional (in)variability, ambiguity or the lack thereof—are also present in their transitive counterparts. This is some exceedingly puzzling phenomenon the situational descriptivist theorist has yet to explain.

More importantly, Elbourne cannot even sustain his claim that (28) is ungrammatical. If the descriptivist theorist is free to avail himself to “any property or relation recoverable from the context” for descriptive enrichment, then the *order of occurrence* of the indefinite antecedents is a rich resource that

he ought not miss out. Reconstructing a grammatical, felicitous, *undeleated* version of (28) is effortless:

(31) If a bishop and a bishop meet, the first bishop blesses the second bishop.

Indeed, Elbourne has no good reason to reject my motion. The proposed descriptive content “first bishop” and “second bishop” is in exact accordance with his general strategy of extracting information directly obtainable from the syntactic surface form; the reconstruction is also consistent with Elbourne’s assumption that situation structures parallel the LF syntactic structure. Hence, (28) ought to be predicted as grammatical.

It is of no use if the descriptivist theorist argues that “the first” and “the second” are not legitimate predicates because they do not pick out any genuine, substantial property. Elbourne’s preferred predicates “distinguished,” “non- distinguished,” and their more complex cousins are by no means less artificial. Besides, there is independent evidence that temporal or linear order does come into play in anaphora resolution.

(32) A bishop entered the chamber. A bishop entered the chamber. He tumbled.

A very natural reading of (32) is this: the second bishop tripped. Think of the first two sentences in this mini discourse as numerically distinct but descriptively indistinguishable situations. The pronoun picks out the individual that is a constituent of the second situation; our mechanism of anaphoric interpretation favors, *ceteris paribus*, the closest possible link. In

this sense, the order in which a NP appears in a sentence or a discourse is a salient feature that should, according to Elbourne's standard, be enough for descriptive enrichment and consequently license anaphoric interpretations.²⁰

Because sentences with identical structure can be fully acceptable, it is difficult to analyze the anomaly of (28) on purely syntactic grounds. Admittedly, amongst sentences with coordinate subjects, there is some variation with respect to whether difference in anaphoric resolutions results in truth conditional effect: we see such effects in (27) but not in (28). Be that as it may, the most critical issue is not how the intransitive bishop sentence (28) deviates from other sentences with coordinate subjects, but how it is differentiated from its transitive version. Since predicates such as "the first" and "the second" are low-hanging fruit that Elbourne has all the reason to help himself to, the descriptivist theorist has no real justification for the asymmetric treatment of the two types of bishop sentences.²¹

²⁰ Another potential explanation of what's wrong with (28) is that coordinate subjects are not available for the interpretation of singular anaphora; there can be no mismatch between the grammatical roles of the antecedent noun phrases and their anaphora in the main clause. But this syntactic parallelism cannot be the final answer. We can easily construct infelicitous bishop sentences with coordinate subjects in both the subordinate and the matrix clauses. For instance, "# If a bishop and a bishop meet, he and he sing."

²¹ If my arguments are sound, intransitive cases of bishop sentences are no empirical argument favoring the descriptivist approach over the dynamic theories. Suppose the Elbourne is able to orchestrate some constraints against the use of ordinal predicates (e.g. "the first" and "the second") or numerically distinct but descriptively indistinguishable situations (e.g. the maximally minimal situations I discuss in Section 3). Those principles can surely be converted into some restrictions regarding the accessibility of discourse referents to which the dynamic theorists can avail themselves. Thus dialectically, the burden is still on the descriptivist theorist to prove that his approach does have wider empirical coverage.

V. Conclusion

Contrary to claims, Elbourne offers no coherent account of the discrepancy between (33a) and (33b):

(33a) If a bishop meets a bishop, he blesses him.

(33b) # If a bishop and a bishop meet, he blesses him.

Elbourne needs to exploit situations, even unbound situations to make his case. However, the strategies employed in the treatment of the transitive cases necessarily lead to contradictory predictions regarding the intransitive cases. Resorting to situational predicates for description enrichment therefore turns out to be not very appealing. Moreover, anaphoric readings in the intransitive cases should not be ruled out indiscriminately, but a general explanation of the unacceptability of some of the intransitive cases, especially how they differ from the corresponding, equally ambiguous but felicitous intransitive cases, is nowhere to be found in the situational descriptivist theory.

On the other hand, Elbourne's commitment to unbound situation variables reveals an underlying similarity between the situational analysis and the dynamic approach.²² If the situational descriptivist proposal works at all, it is because existential quantification is allowed to bind outside its conventional scope. But it is also because of this resemblance that Elbourne's analysis can enjoy no empirical superiority. His predictions cannot be any different from the dynamic alternatives.

²² See Dekker (2004) and Kamp (2014) for similar observation.

As Recanati and Murez put it, “[o]ne leitmotif in the philosophy of language and mind of the past fifty years has been its *anti-descriptivism*. Some objects are represented descriptively, via their qualitative features which are *themselves* represented; but not all objects can be represented in this indirect manner (via the representation of their properties.” (Recanati & Murez, 2016: 267)²³ While it is generally acknowledged that demonstratives provide the paradigm of direct reference as their reference is determined “relationally” rather than “satisfactionally” (Bach, 1987), the scope and limit of the demonstrative paradigm is still an open investigation. Cast against this background, anaphora constitutes an extremely intriguing and uniquely telling case study of the nature of referring. The puzzle presented by the bishop sentences is that not all linguistically oriented objects can have a descriptive nature,²⁴ and the debate forces us to re-consider the very nature and function of description in its various manifestations. It is the elusiveness of descriptions that renders the asymmetry gripping.

Everyone agrees that there is a marked asymmetry between (33a) and (33b). Everyone agrees that the passing along of information is paramount in anaphoric interpretation. But it is exceedingly tricky to articulate just what sort of information is relevant and legitimate when one attempts to figure out which and whether anaphoric resolution is appropriate. If any difference counts, one should never be in a shortage of some differentiating descriptions, which would render the disparity in our judgment concerning (33) extremely

²³ For example, take Devitt (2014: 477): “There must be some representations whose referential properties are not parasitic on those of others, else language as a whole is cut loose from the world. Description theories pass the referential buck, but the buck must stop somewhere.”

²⁴ I thank an anonymous reviewer for making this suggestion.

baffling. Since neither the descriptivist theorists nor the dynamic theorists have a fully satisfactory answer, I conclude that the real problem of the bishop sentences remains open.

References

- Armstrong, David (1978). *Universals and Scientific Realism, vol. 1: Nominalism and Realism*. Cambridge: Cambridge University Press.
- Bach, Kent (1987). *Thought and Reference*. Oxford: Clarendon Press.
- Barker, Chris & Shan, Chung-chieh (2008). “Donkey Anaphor is In-scope Binding.” *Semantics and Pragmatics*, 1(1): 1-46. DOI: 10.3765/sp.1.1
- Berman, Stephen (1987). “Situation-based Semantics for Adverbs of Quantification.” Anne Vainikka & James Blevins (eds.). *University of Massachusetts Occasional Papers in Linguistics, vol. 12* (46-68). Amherst: GLSA, University of Massachusetts.
- Cooper, Robin (1979). “The Interpretation of Pronouns.” Frank Heny & Helmut S. Schenlle (eds.). *Syntax and Semantics: Selections from the Third Groningen Round Table 10* (61-92). New York: Academic Press.
- Dekker, Paul (2004). “Cases, Adverbs, Situations and Events.” Hans Kamp & Barbara H. Partee (eds.). *Context Dependence in the Analysis of Linguistic Meaning* (383-404). Amsterdam: Elsevier.
- Devitt, Michael (2014). “Lest auld acquaintance be forgot.” *Mind & Language*, 29: 475-484. DOI: 10.1111/mila.12060
- Elbourne, Paul (2005). *Situations and Individuals*. Cambridge: MIT Press.
- (2009). “Bishop Sentences and Donkey Cataphora: A Response to Barker and Shan.” *Semantics and Pragmatics*, 2(1): 1-7. DOI: 10.3765/sp.2.1
- (2010). “On Bishop Sentences.” *Natural Language Semantics*, 18(1): 65-78. DOI: 10.1007/s11050-009-9051-9
- Evans, Gareth (1977). “Pronouns, Quantifiers, and Relative Clauses (i).” *Canadian*

- Journal of Philosophy*, 7: 467-536. DOI: 10.1080/00455091.1977.10717030
- (1980). "Pronouns." *Linguistic Inquiry*, 11(2): 337-362.
- Geach, Peter (1962). *Reference and Generality: An Examination of Some Medieval and Modern Theories*. Ithaca, New York: Cornell University Press.
- Groenendijk, Jeroen & Stokhof, Martin (1991). "Dynamic Predicate Logic." *Linguistics and Philosophy*, 14: 39-100. DOI: 10.1007/BF00628304
- Heim, Irene (1990). "E-type Pronouns and Donkey Anaphora." *Linguistics and Philosophy*, 13: 137-177. DOI: 10.1007/BF00630732
- Heim, Irene & Kratzer, Angelika (1998). *Semantics in Generative Grammar*. Malden: Blackwell.
- Kamp, Hans (1981). "A Theory of Truth and Semantic Representation." T. M. V. Janssen, J. A. G. Groenendijk, & M. B. J. Stokhof (eds.). *Formal Methods in the Study of Language* (277-322). Amsterdam: Mathematical Centre Tracts 135.
- (2014). "Why Situations rather than Drefs?" Manuscript.
- Kamp, Hans & Reyle, Uwe (1993). *From Discourse to Logic*. Dordrecht: Kluwer Academic Publishers.
- Kratzer, Angelika (1989). "An Investigation of the Lumps of Thought." *Linguistics and Philosophy*, 2: 607-653. DOI: 10.1007/BF00627775
- Kroll, Nicky (2008). "On Bishops and Donkeys." *Natural Language Semantics*, 16: 359-372. DOI: 10.1007/s11050-008-9037-z
- Lewis, David (1975). "Adverbs of Quantification." Edward L. Keenan (ed.). *Formal Semantics of Natural Language* (178-188). Cambridge: Cambridge University Press.

- Link, Godehart (1983). “The Logical Analysis of Plurals and Mass Terms: A Lattice-Theoretic Approach.” Paul Portner & Barbara Partee (eds.). *Formal Semantics: The Essential Readings* (127-147). Oxford: Blackwell.
- Neale, Stephen (1990). *Descriptions*. Cambridge: MIT Press.
- Recanati, Francois & Murez, Michael (2016). “Mental Files: An Introduction.” *Review of Philosophical Psychology*, 7: 265-281. DOI: 10.1007/s13164-016-0314-3
- Russell, Bertrand (1905). “On Denoting.” *Mind*, 14: 479-493. DOI: 10.1093/mind/XIV.4.479

