SITUATIONS, PRESUPPOSITIONS, AND DESCRIPTIONS



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‘I see nobody on the road,’ said Alice.

‘I only wish *I* had such eyes,’ The King remarked in a fretful tone.

‘To be able to see Nobody! …’

Lewis Carroll, Through the Looking Glass

For my parents, my sister, and Clara.

Abstract

It is commonly assumed that definite descriptions imply the existence and uniqueness of an entity satisfying their nominal content. But there is no widespread agreement on how this is encoded: do definite descriptions assert, or presuppose, existential import? It is rarer still to find consensus on the status of these implications when the definite article is embedded in a variety of syntactic environments. How should we model the behaviour of definite descriptions within questions and conditionals? Do definite descriptions carry uniqueness implications within appositives and nonrestrictive relative clauses? What can constraints on LF movement and binding tell us about the semantics of definites?

In this thesis I examine these questions. In so doing, I defend an analysis of definite descriptions as expressions of type *e*, whose uniqueness presuppositions are stage-managed by the manipulation of syntactic situation pronouns. Notably, this approach accurately accounts for the semantic behaviour of singular definites across a range of configurations that tease apart distinct dimensions of meaning.

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1 Introduction

This thesis investigates the nature of definite descriptions: specifically, their uniqueness implications. Each chapter is united by a common theme, viz., that there is potential for fruitful investigation when definite descriptions are embedded in environments that draw out distinct dimensions of meaning. Following Potts (2005), we split the dimensional divide between content that is *at-issue* and content that is *not-at-issue* (e.g., presuppositions and conventional implicatures).

Chapters 1 and 2 are mostly introductory. The former sets out two compositional type theories, and lays down the methodological groundwork for my approach to phenomena like scope-taking and pronominal binding. The latter presents two analyses of definite descriptions that will recur throughout this thesis, and introduces a framework for theorising about presuppositions.

Chapter 3 presents two arguments—one old, one new—against quantificational analyses of definite descriptions. I develop the new argument and examine the relationship between asserted content, presupposed content, and the common ground. Using data elicited by this examination, I re-visit the old argument and draw evidence in favour of a Fregean analysis of singular definites.

Chapter 4 investigates a puzzle concerning a pattern of definiteness effects. Precisely, the uniqueness implications of definite descriptions exhibit an asym-

metry across two kinds of supplements: *appositives* and *nonrestrictive relatives*. I provide a solution to this puzzle by employing situation semantics within a version of Portner's (2007) framework for interpreting conventional implicature.

Chapter 5 introduces some novel data concerning patterns of presupposition satisfaction exhibited by possessive DPs like 'Mary's cat'. I show that these data are accommodated by Barker's (1995) analysis of possessives, which predicts that the presupposition of a possessive DP will exhibit more or less contextual flexibility according to whether its head noun is sortal or relational.

1.1 | Extensional Semantics

1.1.1 | Type theory

I first introduce an extensional type theory with λ-abstraction, taken from the framework in Heim & Kratzer 1998.

Definition 1.1 [Types]

- e and t are semantic types.
- If σ and τ are semantic types, then $\langle \sigma, \tau \rangle$ is a semantic type.
- Nothing else is a semantic type.

Definition 1.2 [Domains]

- $\mathcal{D}_e$ = the set of individuals.
- $\mathcal{D}_t = \{0, 1\}$.
- If σ and τ are semantic types, then:
  - $\mathcal{D}_{\langle \sigma, \tau \rangle}$ is the set of all functions from $\mathcal{D}_\sigma$ to $\mathcal{D}_\tau$.

A semantic type is assigned to each and every expression, so that those occupying the same grammatical category—ditransitive verbs, for example—will be of the same type. Since every expression is typed, our composition rules (to be introduced soon) are type-driven (cf. Heim & Kratzer, 1998: 44). Perennial conventions of notation also apply. Inner brackets for complex types are omitted to assist readability, and the type constructor $\langle \cdot, \cdot \rangle$ is right-associative. For example, $\langle e, et \rangle$ is

short for $\langle e, \langle e, t\rangle\rangle$. Usually, variables will lack explicit typing information: $[\lambda x \ldots]$ abbreviates $[\lambda x : x \in \mathcal{D}_e \ldots]$, though sometimes I will indicate types via subscript, as in $[\lambda x_e \ldots]$. Dots that immediately follow binding operators ($\lambda, \forall, \exists$) extend the scope of their preceding operator "as far to the right as possible" (Barker & Shan, 2008: 3).

1.1.2 | Logical Form

The *logical form* of a sentence is a representation of its truth-conditions, typically expressed in first-order logic:

(1.1) a. All Dutch linguists love Dynamic Montague Grammar.

b. $\forall x((\texttt{Dutch}(x) \wedge \texttt{linguist}(x)) \rightarrow \texttt{loves}(x, \text{DMG}))$

(1.2) a. Gareth likes every logician.

b. $\forall x(\texttt{logician}(x) \rightarrow \texttt{like}(\text{Gareth}, x))$

I follow the generative tradition of Chomsky (1981), Heim & Kratzer (1998), and Carnie (2013), assuming that sentences have a level of syntactic representation distinct from their surface appearance. This level is Logical Form (LF), to be distinguished from logical form in the sense of (1.1b) and (1.2b) above.

To be precise, the LF of a sentence is a scopally disambiguated syntactic structure, one that serves as the input for semantic interpretation (cf. Huang, 1994: 129). LF is transformationally derived from Surface Structure (SS) via *movement*. Movement indicated at LF may sometimes reflect overt surface movement, as illustrated by topicalisation and *wh*-movement:[1]

1 In (1.4), a 'wh'-pronoun is raised to form a constituent question. Other kinds of 'wh'-movement involve preposition-stranding and pied-piping. See Ross (1967) for discussion.

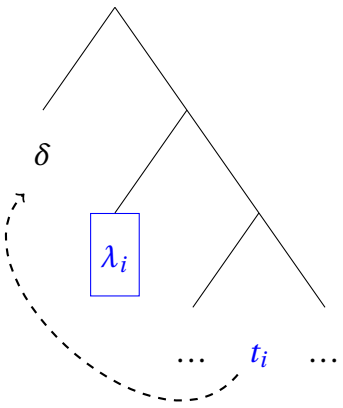
(1.3) a. Esterhause, Smiley saw.

b. Esterhause, [λ_1 Smiley saw t_1].

(1.4) a. Who did Pym mention that he had met?

b. Who$_1$ did Pym mention that he had met t_1?

Following Heim & Kratzer (1998: 261), we give a uniform treatment of all phrasal movement. Determiner Phrases (DPs) are furnished with an index $i \in \mathbf{N}$: this is required for pronominals, and optional for non-pronominals.[2] Raising a DP leaves an obligatorily co-indexed trace t_i at the extraction site, and inserts a syntactic λ_i operator—one that inherits the index of the raised DP—below the landing site of the raised constituent. Schematically, for any DP δ and index i:



The assignment function g is a partial function from $\mathbf{N} \to \mathcal{D}_e$. Predicate Abstraction ensures operator-trace dependence (cf. Büring, 2004: 25). It modifies the assignment function so that pro-forms and traces co-indexed with and c-

2 Though optional, Heim & Kratzer (1998: 261) note that non-pronominal DPs must bear an index if they undergo movement, to ensure that their trace is interpretable. Note also that raised 'wh'-pronouns act as syntactic binders themselves.

commanded by an adjoined λ_i operator—for example, the trace highlighted in the schematic LF above—end up as bound variables in the metalanguage:

Definition 1.3 [Predicate Abstraction (PA)]

For all indices $i \in \mathbf{N}$ and assignments g: $[\![\lambda_i\, \alpha]\!]^g = \lambda x.[\![\alpha]\!]^{g^{x/i}}$.

Definition 1.4 [Pro-forms and Traces (PT)]

If α is a pro-form or trace, g is a variable assignment, and $i \in \mathrm{dom}(g)$, then $[\![\alpha_i]\!]^g = g(i)$.

Definition 1.5 [C-command]

A node α c-commands a node β iff:

(i) neither node dominates the other;

(ii) the first branching node that dominates α dominates β

Here's a demonstration, focussing on the VP in (1.3b):[3]

$$
\begin{aligned}
& [\![[\lambda_1\ [\ \text{Smiley saw } t_1]]]\!]^g & \\
= \quad & \lambda x.[\![\text{Smiley saw } t_1]\!]^{g^{x/1}} & \text{(PA)} \\
= \quad & \lambda x.[\![\text{Smiley saw } t_1]\!]^{[1\to x]} & \text{(d.13)} \\
= \quad & \lambda x.[\![\text{saw}]\!]^{[1\to x]}([\![t_1]\!]^{[1\to x]})([\![\text{Smiley}]\!]^{[1\to x]}) & \text{(FAx3)} \\
= \quad & \lambda x.[\lambda y.\lambda z.\ z \text{ saw } y]([\![t_1]\!]^{[1\to x]})(\text{Smiley}) & \text{(LTx2)} \\
= \quad & \lambda x.[\lambda y.\lambda z.\ z \text{ saw } y](x)(\text{Smiley}) & \text{(PT)} \\
= \quad & \lambda x.[\lambda z.\ z \text{ saw } x](\text{Smiley}) & (\lambda\text{C.I}) \\
= \quad & \lambda x.\ \text{Smiley saw } x & (\lambda\text{C.I})
\end{aligned}
$$

Pronouns and traces receive bound variable interpretations when c-commanded by a co-indexed binder. Otherwise, they are interpreted as directly referential relative to a suitable assignment, e.g. $[\![\text{he}_7\ \text{ran}]\!]^{[7\to\ \text{Chris}]} = [\text{Chris ran}]$.[4]

Often, movement will be *covert*, occurring only in the transformation from SS to LF via Quantifier Raising (QR).[5] For example, QR is required to interpret sentences containing quantifiers in object position. The problem with (1.2), re-

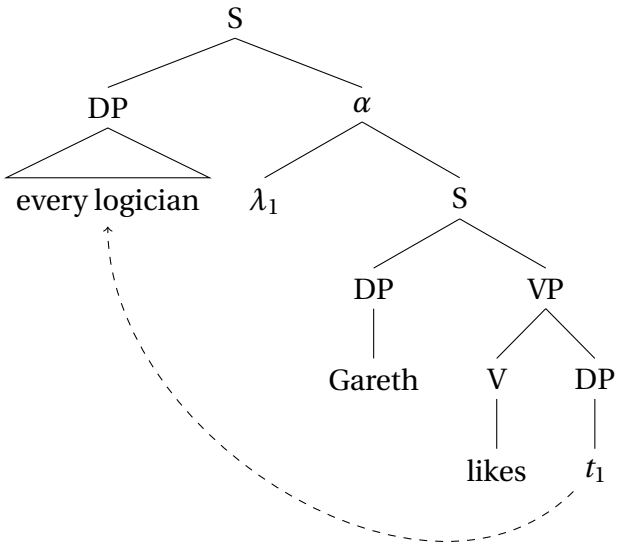
3 Definition 13 (d.13) allows us to re-write $g[x/1]$ as $[1 \to x]$. This variable assignment is a partial function from **N** into $\mathcal{D}_e$, as it is defined only for the integer 1. An application of PT tells us that $[1 \to x](1) = x$. The remainder of the composition rules are provided in the main Appendix.

4 The exception that proves the rule are donkey pronouns, those bound by a non-c-commanding antecedent, as in 'every man who owns a donkey beats it'. Here, *it* co-varies with *a donkey*, yet the indefinite DP does not c-command the pronoun. It cannot be raised to achieve c-command because it sits inside a relative clause, an island for movement. Further, even if the indefinite could be raised in this way, doing so would generate an incorrect reading according to which many farmers beat a single donkey that they co-own. For further discussion, see Evans (1977, 1980), Heim (1990), and Elbourne (2005), with Barker & Shan (2008) offering dissent.

5 Despite the name, QR involves the covert movement of any DP in the derivation from SS to LF.

peated below, is that the quantified DP 'every logician' is of type $\langle et, t\rangle$, and 'likes' is of type $\langle e, et\rangle$, so there is a type mismatch if we attempt to use Functional Application to yield a value for the VP. To interpret (1.2), we assume that the DP is raised out of the VP at LF, rather than leaving the DP in *situ* and type-shifting its denotation:

(1.2) Gareth likes every logician.



The property abstract induced by movement is $[\lambda x.$ Gareth likes $x]$. This is of type $\langle e, t\rangle$ and may saturate the $\langle et, t\rangle$-type DP, and so sentence (1.2) will be true just in case for every individual x such that x is a logician, Gareth likes x. These truth-conditions adequately capture the first-order translation in (1.2b), as desired.

1.2 | Situation Semantics

1.2.1 | Two-sorted types

With the extensional framework in place, I now introduce a modified system that brings intensionality into the fold. This is a *two-sorted* type theory with λ-abstraction, based on the systems in Schwarz 2012 and Elbourne 2013.

Definition 1.6 [Types (two-sorted)]

- e, t, and s are semantic types.
- If σ and τ are semantic types, then $\langle \sigma, \tau \rangle$ is a semantic type.
- Nothing else is a semantic type.

The innovation is that a new type s is treated as basic, so not only are there variables $\{s, s', s'' \ldots\}$ of type s in the meta-language, but we also have *pronouns* $\{s_1, s_2, \ldots, s_n\}$ of type s in the object-language too (cf. Gamut, 1990: 133).[6] This differs from intensional type theories like that in von Fintel & Heim 2011, wherein there is no basic type s, as it only appears in the recursive construction of intensions of the form $\langle s, \sigma \rangle$.

The new domains are defined below:

Definition 1.7 [Domains, from Elbourne 2013: 32]

- $\mathcal{D}_e$ = the set of possible thin particulars.

6 Intensional parameters are manipulated by *object-language* quantification and abstraction over situations (or rather, situation pronouns). Hence, in Gamut 1990: 134 we find the observation that "the syntax of two-sorted type theory is quite analogous to that of extensional type theory".

- $\mathcal{D}_t = \{0, 1\}$.
- $\mathcal{D}_s$ = the set of possible situations (including the set of thick particulars).
- $\leq$ = a partial ordering on $\mathcal{D}_s \cup \mathcal{D}_e$ such that:
  (i) for no $s \in \mathcal{D}_s$ is there an $x \in \mathcal{D}_e$ such that $s \leq x$;
  (ii) for all $s \in \mathcal{D}_s$ there is a unique $s' \in \mathcal{D}_s$ such that $s \leq s'$ and for all s'': if $s' \leq s''$, then $s'' = s'$.
- $\mathcal{W}$ = the subset of $\mathcal{D}_s$ containing all of its maximal elements under $\leq$, i.e., the set of possible worlds.
- If σ and τ are semantic types, $\mathcal{D}_{\langle\sigma,\tau\rangle}$ is the set of all functions from $\mathcal{D}_\sigma$ to $\mathcal{D}_\tau$.

Following Kratzer (1989, 2020), I treat situations as (parts of) possible worlds. They consist of entities, properties, and relations between those entities and properties. Discussion of individuals now also distinguishes between *thick* and *thin* particulars. A thick particular is a particular with all of their non-relational properties, whereas a thin particular is a particular "taken in abstraction" from all of their properties (Elbourne, 2013: 24).[7]

Situations also fall under the remit of standard axioms of mereology, because parthood ($\leq$) is a partial order.[8] Hence: $s \leq s'$ just in case $s + s' = s'$. In such a case, s' is an *extension* of s, although parthood is restricted to situations that are

7 Given our technical definition of what counts as a situation, thick particulars are situations (Kratzer, 1989: 613). The importance of this point will crop up in §4.3.3.

8 For this reason, it is common for those working in situation semantics to assume the Lewisian (1991: 79) tenet of unrestricted composition, albeit cast under a situation-theoretic guise.

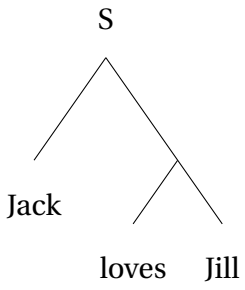
worldmates (Schwarz, 2012: 441). Finally, a *minimal* situation is defined as that situation which, relative to some proposition p, is the smallest situation such that $p(s) = 1$. For example, take the proposition that *Jack sings*. A situation consisting of Jack singing and Jill dancing is not minimal with respect to this proposition, because it contains a smaller sub-situation—lacking Jill—in which Jack sings.

1.2.2 | Situation Pronouns

The syntax features situation pronouns of type s. Like pronouns of type e, these may be either bound or referential. If the former, they are interpreted as bound metalanguage variables ranging over elements of $\mathcal{D}_s$. If the latter, they are interpreted as denoting a situation in $\mathcal{D}_s$, under a suitable assignment. Importantly, these pronouns are object-language items, distinct from metalanguage situation variables as in $[\lambda s.\ \ldots s \ldots]$.

To illustrate, consider (1.5). No situation pronouns are present in its LF:

(1.5) Jack loves Jill. ≈



The denotation is calculated below. Situation variables—along with variables of type e—make their debut in the metalanguage lexical entry for *loves*:[9]

9 We also re-define $g := \mathbf{N} \to (\mathcal{D}_e \cup \mathcal{D}_s)$. This is because situation pronouns are of type s and bear indices, so we want them to be interpretable using Pro-Forms and Traces.

(1.6) $[\![\text{Jack loves Jill}]\!]^g$

$= [\![\text{loves}]\!]^g([\![\text{Jill}]\!]^g)([\![\text{Jack}]\!]^g)$ (FA x2)

$= [\lambda x.\lambda y.\lambda s.\ y \text{ loves } x \text{ in } s](\text{Jill})(\text{Jack})$ (LT x3)

$= [\lambda y.\lambda s.\ y \text{ loves Jill in } s](\text{Jack})$ (λC.I)

$= \lambda s.\ \text{Jack loves Jill in } s$ (λC.I)

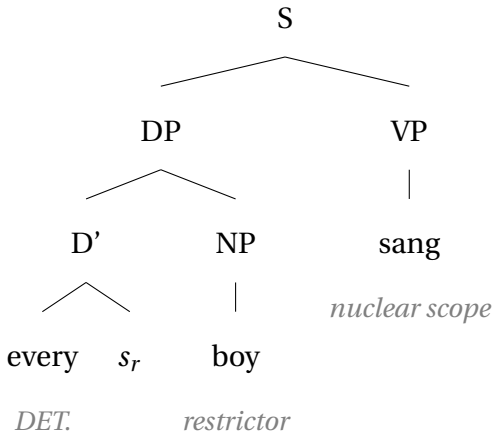
Read as: the smallest function that maps any situation s to 1 just in case Jack loves Jill in s, and to 0 otherwise.

A quantifier is composed from a quantificational determiner and a nominal. The nominal restrictor imposes a sortal constraint on the domain of quantification: 'every bishop' quantifies only over bishops, for example. In the systems of Elbourne (2013) and Schwarz (2012), only determiners are accompanied by situation pronouns at LF, and this is obligatory. The addition of these restrictor pronouns enables quantifier domains to be manipulated with more precision than blanket sortal restriction, depending on how the pronouns are handled.[10] Here's an example. Following Schwarz (2012: 445), I adopt the mnemonic convention of sub-scripting restrictor pronouns with 'r':[11]

10 For general discussion, see Montague (1974), Barwise & Cooper (1981), Westerståhl (1984), and von Fintel & Keenan (2018). See Stanley & Szabó (2000) and Stanley (2002a) for analyses that attach a silent function and variable to the NP to precisify quantifier domains.

11 This "should be considered as a notational variant of standard indexed variables (I'll assume that r can receive a value via the assignment function g or be bound, just like regular indices represented by the natural numbers)." (Schwarz, 2012: 445).

(1.7) Every boy sang ≈



A situation pronoun is in the LF for (1.7). Adopting a simplified entry for 'every', I give a toy calculation for (1.7), assuming that the restrictor pronoun receives a referential treatment and that the assignment is to an actual situation s^*:

(1.8)

$$[\![\text{every } s_r \text{ boy sang}]\!]^{[r\to s^*]}$$

$$= [\![\text{every}]\!]^{[r\to s^*]}([\![s_r]\!]^{[r\to s^*]})([\![\text{boy}]\!]^{[r\to s^*]})([\![\text{sang}]\!]^{[r\to s^*]}) \quad \text{(FAx3)}$$

$$= [\![\text{every}]\!]^{[r\to s^*]}(s^*)([\![\text{boy}]\!]^{[r\to s^*]})([\![\text{sang}]\!]^{[r\to s^*]}) \quad \text{(PT)}$$

$$= \left[\lambda s'.\lambda F.\lambda G.\lambda s.\forall x[F(x)(s')=1\to G(x)(s)=1]\right](s^*)$$

$$(\lambda x.\lambda s.\,\text{boy}(x)(s)=1)(\lambda x.\lambda s.\,\text{sang}(x)(s)=1) \quad \text{(LTx3)}$$

$$= \left[\lambda F.\lambda G.\lambda s.\forall x[F(x)(s^*)=1\to G(x)(s)=1]\right]$$

$$(\lambda x.\lambda s.\,\text{boy}(x)(s)=1)(\lambda x.\lambda s.\,\text{sang}(x)(s)=1) \quad (\lambda\text{C.I})$$

$$= \left[\lambda G.\lambda s.\forall x[\text{boy}(x)(s^*)=1\to G(x)(s)=1]\right]$$

$$(\lambda x.\lambda s.\,\text{sang}(x)(s)=1) \quad (\lambda\text{C.I})$$

$$= \lambda s.\forall x[\text{boy}(x)(s^*)=1\to \text{sang}(x)(s)=1] \quad (\lambda\text{C.I})$$

This is the (smallest) function that maps any situation s to 1 just in case every boy in s^* sang in s, and to 0 otherwise. As a result, quantificational scope and nuclear scope are pulled apart. Suppose s^* contains only two boys, Adrian and Ash. The denotation in (1.8) will then map any situation s to 1 iff Adrian and Ash both sang in s (and to 0 otherwise), even if s contains other boys who did not sing.[12]

Restrictor pronouns can also be bound. Elbourne (2013: 33) provides three binders, but for the purposes of this thesis, only the first will be of use:

Definition 1.8 [Situation Binding (SB)]

For all indices $i \in \mathbf{N}$ and assignments g: $[\![\varsigma_i\, \alpha]\!]^g = \lambda s.[\![\alpha]\!]^{g^{s/i}}(s)$.

As with Predicate Abstraction, the idea is that the syntactic binding operator ς_i is interpreted as a λ-abstractor, so that all situation pronouns co-indexed with, and in the c-command domain of, the binder at LF end up as λ-bound metalanguage situation variables (cf. Büring, 2004).[13]

Finally, declarative sentences are of type $\langle s, t\rangle$: their meanings are propositions, functions from situations to truth-values. To get something of type t from these denotations, we assume that when an individual utters a sentence, the corresponding speech-act of assertion involves asserting a proposition about some *topic situation*.[14] As Cooper (2005: 335) puts it: "statements are not true

12 In virtue of being able to manipulate the domain of quantified DPs in this way, this analysis also separates a quantifier's scope from the intensional parameter with respect to which its restrictor NP is evaluated. This is (arguably) required to handle certain intensional scope puzzles involving *de re*/*de dicto* ambiguities. See Kaplan 1968, Fodor 1970, Bäuerle 1983, Percus 2000, Keshet 2008a,b, 2010, Schwarz 2012, Keshet & Schwarz 2019, Lederman 2021 and Elliott Forthcoming.

13 I will explore an application of this rule in §4.3.4.

14 For defence of this idea, see Austin 1950, Barwise & Perry 1983, Barwise & Etchemendy 1987, and Zweig 2006. In particular, situation semantics has paid dividends in the analyses of various natural language phenomena, including: adverbial quantification (Berman 1987, von Fintel 2004a),

or false *simpliciter* but are true or false of something, some part of the world". For example, if I were to utter (1.9a) about some situation s^{**} in which Lynsey is indulging her passion for science-fiction, my speech-act can be represented by (1.9b), an 'Austinian proposition':

(1.9) a. Lynsey is watching *The X-Files*.

b. $\langle s^{**}, \lambda s.$ Lynsey is watching The X-Files in $s \rangle$

What I say is true just in case the topic situation s^{**} is mapped to 1 by the asserted proposition (cf. Elbourne, 2013: 30).

Before moving on, a comment on methodology. The semantic particulars outlined in this chapter will, for the most part, be safely ignored for the purposes of Chapter 3. The reason for this is that I wish to keep the argumentation in that chapter unburdened by any idiosyncratic assumptions about compositional semantics, so as to maintian a level of generality to the discussion. The mechanics of two-sorted types, situation pronouns, and Austinian propositions will feature heavily in Chapters 4 and 5, where my concern will turn to matters of compositional regimentation.

domain restriction (Kratzer, 2005), 'sage-plant' sentences (Heim, 1990), donkey pronouns (Heim 1990, Elbourne 2005, 2013), interrogatives (Ginzburg 1996, Ginzburg & Sag 2000), and tense (Klein, 1994).

2 Two Approaches to Definites

Abstract In this chapter I set out what is at stake between different analyses of definite descriptions and survey the current state of the literature, clearing the way for subsequent discussion.

Syntactically, definite descriptions are determiner phrases composed from the singular definite article and a restrictor predicate, as witnessed by (2.1) and (2.2) below. They may be accompanied by a matrix predicate, to form a declarative sentence, as in (2.3) and (2.4):

(2.1) The mayor of Berlin.

(2.2) The bespectacled philosopher.

(2.3) The king of France is bald.

(2.4) The spy ran.

Central to the debate between competing analyses of definite descriptions is the semantic status of the definite article, an issue to which I now turn.

It is worth noting, however, that while the following survey is by no means exhaustive of all analyses on the market, it draws an appropriate line in the sand. I will distinguish analyses by dividing them into two broad camps, according to the

assertoric truth-conditions they assign to definite descriptions. As will become clear in Chapter 3, analyses which take definite descriptions to encode assertions of existence (and uniqueness) will serve as an appropriate foil for the analysis that I will defend in this thesis.[15]

2.1 | Russellian

One predominant view traces to Russell (1905: 488), who proposed a syncategorematic treatment of the definite article, assigning to statements of the form 'the F is G' the truth-conditional gloss 'one and only one entity is F, and that one is G':[16]

Definition 2.1 [Russellian Analysis]

$$[\![\text{the}]\!]^g = \quad \lambda F.\lambda G.\exists x \forall y((F(y) = 1 \leftrightarrow y = x) \wedge G(x) = 1)$$

'the F is G'

- **Assertion**: there exists exactly one F and it is G
- **Presupposition**: none

The definite article is of type $\langle et, \langle et, t\rangle\rangle$, akin to other quantificational determiners. Definite descriptions of the form 'the F' denote functions of type $\langle et, t\rangle$, akin to other generalised quantifiers. Consequently, 'the F is G' denotes a declarative

15 Analyses that I lack the space to consider here include those from Graff Fara (2001), Roberts (2003), and Szabó (2000, 2005). The arguments canvassed in Chapter 3, however, will equally apply to Szabó's theory, since he takes definite descriptions to assert existence.

16 Neale (1990) later provided an explicit quantificational logical form using restricted quantifier notation: [the $x : Fx$]$G(x)$. This notation is truth-conditionally equivalent to Russell's analysis, it just frames it in a manner that emphasises a categorematic treatment of 'the' (Neale, 1990: 45). In what follows, I stick to Russell's better-known logical form. See also Neale (2005), Ludlow & Neale (1991), and Pupa (2013) for defenses of the Russellian analysis. To prevent this entry from being intensionally impoverished, we could, in an intensional type theory, furnish the interpretation function with a world parameter. However, as I noted at the end of Chapter 1, a simple extensional setup is adequate for current purposes. The Russellian analysis will feature only in Chapter 3, wherein the discussion aims for neutrality regarding one's choice of compositional type theory.

of type t. Here's a representative derivation for (2.4):

$$
\begin{aligned}
& [\![\text{the spy ran}]\!]^g \\
= \quad & [\![\text{the}]\!]^g([\![\text{spy}]\!]^g)([\![\text{ran}]\!]^g) && \text{(FAx2)} \\
= \quad & \left[\lambda F.\lambda G.\exists x \forall y((F(y) = 1 \leftrightarrow y = x) \wedge G(x) = 1)\right] \\
& (\lambda x.\ x \text{ is a spy})(\lambda x.\ x \text{ ran}) && \text{(LTx3)} \\
= \quad & \left[\lambda G.\exists x \forall y((\mathsf{spy}(y) = 1 \leftrightarrow y = x) \wedge G(x) = 1)\right](\lambda x.\ x \text{ ran}) && (\lambda\text{C.I}) \\
= \quad & \exists x \forall y((\mathsf{spy}(y) = 1 \leftrightarrow y = x) \wedge \mathsf{ran}(x) = 1) && (\lambda\text{C.I})
\end{aligned}
$$

The upshot of the Russellian analysis is that the existence of a unique F is built into the assertoric truth-conditions of definite descriptions, so any declarative sentence like (2.3) that embeds an empty description will come out as false.

2.2 | Fregean

The presuppositional approach—inspired by Frege (1892)—claims that singular definite constructions make no *assertion* of existence nor uniqueness. Following Elbourne's (2013) situation-theoretic treatment, the article is of type $\langle\langle e, st\rangle, se\rangle$: it denotes the (smallest) function that maps any property to a function from any situation s to an entity that uniquely instantiates that property in s.[17] When the

17 There will be small type variations in other systems, e.g., in Schoubye's (2011; 2013) dynamic semantic analysis. The uniting feature of Fregean theories, however, is that definite descriptions are expressions of type e, with uniqueness presuppositions. For discussion of 'predicative' uses of descriptions in the tradition of Strawson (1950), see §4.2.

article composes with an appropriate NP and a restrictor pronoun, the resulting definite description is an expression of type e:[18]

Definition 2.2 [Fregean Analysis]

$$[\![\text{the}]\!]^g = \lambda F_{\langle e,st\rangle}.\,\lambda s : \exists! x[F(x)(s) = 1].\,\iota x[F(x)(s) = 1]$$

'the F is G'

- **Assertion**: a is G (where 'a' is a singular term picking out the unique F, if it exists (Elbourne, 2021: 2))
- **Presupposition**: there is exactly one F

The iota term '$\iota x[\xi]$' abbreviates 'the unique x such that ξ'. This lexical entry encodes no assertion of uniqueness nor existence, but rather a *presupposition* to that effect. In other words, the existence of a unique entity satisfying the nominal content of a definite description is not built into its assertoric truth-conditions.

I adopt a standard approach to presuppositions. They are treated as propositions 'taken for granted' (Rothschild, 2008: 474) by lexical items known as *triggers*. Precisely, as in the lexical entry, the presupposition takes the form of a domain condition for the situation variable, to wit: the function is defined only for those situations that contain exactly one x that is F. The result is a *partial function* because the definite article will only map a *subset* of $\mathcal{D}_s$ into $\mathcal{D}_e$. For any declarative sentence containing a definite description 'the F', if the restrictor pronoun accompanying that description at LF fails to satisfy the relevant domain condition, then the sentence will lack a truth-value, since composition grinds to a halt.

18 Alternatively, one might wish to reserve 'definite description' for individual concepts of type $\langle s, e\rangle$, which as a matter of fact obligatorily combine with restrictor pronouns (cf. Elbourne, 2013: 47).

For comparison with the Russellian analysis, here's a derivation for (2.4), assuming that the situation pronoun s_r is free, the assignment function $g = [s_r \rightarrow s*]$, and that s^* contains exactly one spy:

$$
\begin{aligned}
& [\![\text{the spy } s_r \text{ ran}]\!]^{[s_r \rightarrow s*]} \\
= \quad & [\![\text{ran}]\!]^{[s_r \rightarrow s*]}([\![\text{the}]\!]^{[s_r \rightarrow s*]}([\![\text{spy}]\!]^{[s_r \rightarrow s*]})([\![s_r]\!]^{[s_r \rightarrow s*]})) && \text{(FAx3)} \\
= \quad & [\![\text{ran}]\!]^{[s_r \rightarrow s*]}([\![\text{the}]\!]^{[s_r \rightarrow s*]}([\![\text{spy}]\!]^{[s_r \rightarrow s*]})(s^*)) && \text{(PT)} \\
= \quad & \big[\lambda x.\lambda s.x \text{ ran in } s\big]\big(\big[\lambda F.\lambda s : \exists!x[F(x)(s) = 1].\ \iota x[F(x)(s) = 1]\big] \\
& (\lambda x.\lambda s.x \text{ is a spy in } s)(s^*)) && \text{(LTx3)} \\
= \quad & \big[\lambda x.\lambda s.x \text{ ran in } s\big]\big(\big[\lambda s : \exists!x[x \text{ is a spy in } s].\ \iota x[x \text{ is a spy in } s]\big](s^*)\big) && (\lambda\text{C.I}) \\
= \quad & \big[\lambda x.\lambda s.x \text{ ran in } s\big](\iota x x \text{ is a spy in } s^*) && (\lambda\text{C.I}) \\
= \quad & \lambda s.\iota x\, x \text{ is a spy in } s^* \text{ ran in } s && (\lambda\text{C.I})
\end{aligned}
$$

As shown, the definite description is treated as an expression of type e, taken as argument by the denotation of 'ran'.

2.3 | Empty Descriptions

The compositional role assumed by presuppositions in the Fregean analysis—and lack thereof in the Russellian analysis—provides a point of contrast. According to the former, the sentences below will lack a truth-value. Composition crashes because the embedded definite descriptions are empty, so suffer from presupposition failure. According to the latter analysis, these sentences will be false:

(2.5) The Ministerpräsident of Prussia is enigmatic.

(2.6) Figs grow in the Garden of the Hesperides.

My opinion on this matter largely follows that of Geurts (1999): data on what the 'correct' judgement is in response to cases like these is empirically muddled. Native speakers exhibit conflicting intuitions with one another as to whether sentences embedding empty descriptions are false or truth-value-less, so for a great number of sentences, there is no stable way to test the empirical predictions of the Russellian and Fregean analyses. Since I lack the space to properly address these issues, I will mostly set aside discussion of empty descriptions and truth-value intuitions in this thesis.[19]

2.4 | Presuppositions and the Common Ground

Throughout this thesis, I work with a set of assumptions about presuppositions, assertions, and the felicity conditions that dictate each. I briefly survey the framework adopted, flagging any points of contention.

I apply the Pottsian (2005; 2007; 2015) label of 'at-issue' to the assertoric truth-conditional content expressed by an utterance of a declarative sentence ϕ. Any other content will be labelled 'not-at-issue'.[20] This latter class includes a sub-division between presuppositions and conventional implicatures (CIs),

19 As reported in Geurts 1999, Strawson (1950) identified that speaker intuitions on this matter seem to wax and wane with the question under discussion. For this reason, I am inclined to think that the discussion in Schoubye 2009 is along the right lines, although I lack the space to fully address the issue here. For further discussion, see also von Fintel 2004b.

20 I will usually stick to these labels for two reasons: (i) strictly speaking, the 'truth-conditional' label for assertoric content is misleading because not-at-issue content also has truth-conditions, e.g., CIs are propositional; (ii) 'not-at-issue' clearly groups together all kinds of content that project (c.f. McCready (2010), Simons et al. (2010), Roberts (2012), Frazier et al. (2018) and Bassi et al. (2021)). In what follows, I accept Potts' descriptive account of the projective behaviour of presuppositions and CIs. I develop a compositional analysis of CIs in Chapter 4.

with the latter further dividing into *supplements* and *expressives*. I focus here on presuppositions. Supplements will take centre stage in Chapters 4 and 5.

2.4.1 | Semantic Presuppositions

Semantic presuppositions are uniquely identified by four related features: (i) conventionality, (ii) dependence, (iii) backgrounded-ness, and (iv) projectivity.

To be conventional is to not be pragmatically implicated (Potts, 2005: 9). By definition, semantic presuppositions have this feature, being encoded in the lexicon as domain conditions that introduce restrictions on functions beyond type constraints.[21] As a result, they end up acting as "meta-properties of denotations" (Potts, 2015: 176). This in turn accounts for the truth-conditional dependence exhibited between presuppositions and at-issue content: composition is functional application, and a function cannot yield a value when a prospective argument is not in its domain. Thus, at-issue composition depends on the satisfaction of any relevant domain conditions.

Third, we turn to *backgrounded-ness*. This is a pragmatic requirement imposed on contexts of utterance: any semantic presupposition of a sentence ϕ must already be accepted in the context of utterance before ϕ is uttered (von Fintel, 2008: 138). To appreciate why this is so, I introduce a broadly Stalnakerian model of discourse:

> (TARGET) The purpose of uttering a sentence in conversation is to thereby assert a proposition capable of updating the context set of that conversation (von Fintel, 2008: 139).

21 For influential defence of this treatment, see Heim & Kratzer 1998 and Kadmon 2001.

Definition 2.3 [Common Ground]

The common ground is the set of propositions $\{p_1, \ldots, p_n\}$ asserted and accepted by some conversational participants in a given discourse. The context set $(C) = \bigcap\{p_1, \ldots, p_n\}$, the set of worlds compatible with the common ground.

> **Update**: when a discourse participant utters a sentence ϕ and thereby asserts a proposition q, this is a proposal to add q to the common ground.
>
> - If the assertion of q is accepted, update the context set to get $\{w \mid w \in C \cap q\}$, i.e., remove from C all worlds incompatible with q.
> - If the assertion of q is rejected (e.g., because it is known to be false), there is no update.

The aim is to whittle down the context set until arrival at the actual world.

Finally, semantic presuppositions are encoded by lexical items, so let $\mathsf{P}(\cdot)$ be a function from sentences to their presuppositions. Therefore:

> (BRIDGE) An utterance of a sentence ϕ that carries a semantic presupposition $\mathsf{P}(\phi)$ is capable of updating some context set C if and only if C entails $\mathsf{P}(\phi)$.[22]

With these pieces in place we have a connection between semantic presuppositions and the common ground, thereby explaining *backgrounded-ness*.[23] For

22 The moniker *Stalnaker's Bridge* is due to von Fintel (2008: 139). In the wake of Keenan (1971), Karttunen (1974), Shanon (1976), and Stalnaker (1974, 1978), the dominant approach is to maintain that there exist both semantic and pragmatic presuppositions, interacting in the manner described. Some dynamic systems also make use of a common ground model, notably Heim's (1982) File-Change Semantics (cf. Rothschild, 2008: 481). For dissent, see van der Sandt 1992 and Geurts 1999 for 'presupposition as anaphora' theories couched in DRT (Kamp & Reyle, 1993).

23 Technically, another way in which BRIDGE might be violated is when a presupposition has to be satisfied during semantic composition (cf. the derivation in §2.2). In this case, presupposition

concreteness, focus on the sentence in (2.7a). A standard denotation using two-sorted type-theory is given in (2.7b):

(2.7) a. Maria stopped smoking.

b. λv : Maria used to smoke in v. Maria no longer smokes in v

The presupposition of (2.7a) can be regarded as the proposition composed of those worlds that meet the domain condition rendered in (2.7b): $\{v \mid$ Maria used to smoke in $v\}$. The function in (2.7b) is defined for any v just in case this domain condition is met, so it is the characteristic function of the set of worlds v in which Maria used to smoke, but no longer does. Suppose a speaker were to sincerely utter (2.7a) in a context such that it is not common ground that Maria used to smoke. Then, the proposition in (2.7b) will not be defined relative to at least one world in the context set, so **update** cannot remove *all* worlds in the context set incompatible with this proposition (cf. BRIDGE).

In such a case, an utterance of (2.7a) is infelicitous due to a violation of TARGET. Hence, *backgrounded-ness*: sentence utterances only express propositions capable of updating the context set when the semantic presuppositions of those sentences—if there are any—are common ground. In a slogan: backgroundedness ensures that **update** is defined. Naturally, this imposes norms on speakers. If a speaker sincerely utters (2.7a), they must assume that the semantic presupposition of the sentence is common ground (cf. von Fintel, 2008: 140).[24]

failure means that semantic composition fails. An utterance of ϕ expresses no proposition at all, and the common ground is unaffected. To keep presentation simple, I focus on the kind of case in (2.7), as von Fintel (2008) does.

24 Presuppositions can sometimes introduce new material to the common ground. Accommodation is a process whereby the context set is 'pre-updated' by intersecting C with $\mathsf{P}(\phi)$ prior to the update induced by $C \cap p$ (where p is the at-issue content asserted by an utterance of ϕ) (cf. Lewis, 1979).

Finally, semantic presuppositions are *projective*. A meaning projects just in case it is implied even when the expression triggering it is within the scope of an operator that blocks at-issue entailments. Hence, projectivity is characteristic of not-at-issue-ness:

(2.8) Lynsey stopped watching *The X-Files*.

a. It is false that Lynsey stopped watching *The X-Files*.

b. If Lynsey stopped watching *The X-Files*, then…

c. Did Lynsey stop watching *The X-Files*?

$\rightsquigarrow$ *Lynsey used to watch The X-Files* [Presupposition]

The *projection problem* is the problem of determining when, and how, complex sentences inherit the presuppositions of their constituent parts. In the tradition of Karttunen (1974) and Stalnaker (1974), we explain projection behaviour in terms of entailment between context sets and semantic presuppositions:

Definition 2.4 [Satisfaction Rules (cf. Beaver, 1997: 968)]

- $\neg\phi$ is felicitous in C iff $C \Vdash P(\phi)$
- $\phi \vee \psi$ is felicitous in C iff $C \Vdash (P(\phi) \wedge (\neg\phi \rightarrow P(\psi))$
- $\phi \wedge \psi$ is felicitous in C iff $C \Vdash P(\phi) \wedge \phi \rightarrow P(\psi)$
- $\phi \rightarrow \psi$ is felicitous in C iff $C \Vdash P(\phi) \wedge \phi \rightarrow P(\psi)$
- $?\phi$ is felicitous in C iff $C \Vdash P(\phi)$

For each complex sentence above, the conditions flanking the right-hand side of the biconditional detail what the presuppositions of the complex may be. To give an example:

(2.9) If Theo has children, his children are tired.

The matrix clause presupposes that Theo has children, whereas the entire conditional presupposes only that if Theo has children, then they are tired (cf. Katzir & Singh, 2013: 3). The reason for this is that the presupposition of the matrix need only hold in worlds where the content of the *if*-clause is true, i.e., in worlds where Theo has children. So, the context set is first 'locally' extended with the proposition that Theo has children, and this extended context set is checked against the presupposition of the consequent. In the case of (2.9), the matrix presupposition is entailed by the content of the antecedent, so it does not project. That is, the conditional as a whole does not presuppose that Theo has children.[25]

25 This model will be revised slightly at some points of discussion in Chapter 4, where I work in situation semantics. For the moment, however, this model is more than adequate to serve as the backdrop to Chapter 3, which will not use situation semantics.

3 Presupposition and Assertion

Abstract The Russellian analysis of definite descriptions predicts unavailable readings for conditionals embedding singular definites in their protases (Heim 1991, Kripke 2005, Elbourne 2010). Rostworowski (2018) argues that, at best, this problem establishes only that the definite article is presuppositional, in which case it may still have quantificational truth-conditions. Here, I respond to Rostworowski 2018. First, I examine the relationship between at-issue content, not-at-issue content, and the common ground, developing some points in Elbourne 2021. Using data elicited by this examination, I show that the original objection to the Russellian analysis still supports a Fregean decomposition of singular definites.

3.1 | Introduction

A stock of data problematic for the Russellian analysis is found in Heim 1991, Kripke 2005, and Elbourne 2005, 2010 (HKE). The standard quantificational approach has it that the definite article (i) carries no semantic presupposition, and that (ii) existence and uniqueness claims form part of its at-issue content, viz., the *asserted* truth-conditional content (cf. Schoubye, 2013: 496). The following

(a)-sentences, then, are paraphraseable according to the at-issue content that Russellians assign to definite descriptions, as indicated in the (b)-sentences:[26]

(3.1) a. Jeroen wants the banshee in his attic to be quiet tonight.

b. Jeroen wants there to be exactly one banshee in his attic, and for it to be quiet tonight.

(3.2) a. If the banshee in his attic is quiet tonight, Jeroen will write his paper.

b. If there is exactly one banshee in Jeroen's attic and it is quiet tonight, Jeroen will write his paper.

The (a)-sentences do not have the readings of their (b)-variants, however. Out of the pair in (3.2), for example, only an utterance of (3.2a) takes for granted that there exists exactly one banshee in Jeroen's attic. Elbourne (2010: 4) draws out the contrast with the following test:

(3.3) I don't know whether there is exactly one banshee in Jeroen's attic, but…

a. #…if the banshee in his attic is quiet tonight, Jeroen will write his paper.

b. …if there is exactly one banshee in Jeroen's attic and it is quiet tonight, Jeroen will write his paper.

26 By 'paraphrase', I mean that we take the Russellian at-issue truth-conditions, then transpose them "under the relevant operators, closely following the syntactic form of the sentences" (Elbourne, 2010: 2). Further, Neale (2005) and Kaplan (2005) challenge pairs like (3.1), pointing out that propositional attitudes are not closed under entailment, in which case (3.1b) does not entail that Jeroen wants there to be exactly one banshee in his attic. In response, Elbourne (2010: 6) shows that the objection is not about entailment under propositional attitudes. Rather, it is that the pair in (3.1) have different truth-conditions. If Jeroen is unsure whether a banshee currently occupies his attic, then (3.1b) ascribes to him a consistent propositional attitude, whereas (3.1a) does not.

As this illustrates, only (3.3b) is a felicitous discourse continuation after an avowal of existential agnosticism. (3.3a) is an infelicitous continuation. However, (3.3a) and (3.3b) differ only in that the latter contains a Russellian existential-'there' clause in the place of a 'the'-clause. If the contrast in (3.3) is to be explained, these clauses must be making distinct truth-conditional contributions to the at-issue content of their respective sentences. Therefore, the Russellian truth-conditions do not provide a correct semantic analysis of the definite article (cf. Elbourne, 2010: 4).[27]

3.1.1 | Covert Movement

In defence of the Russellian, it may be noted that correct truth-conditions are generated if descriptions obligatorily undergo quantifier raising out of *if*-clauses. On the assumption that definite descriptions always scope over conditionals at LF, the result of this covert movement and Russellian truth-conditions yields (3.4), not (3.2b), as a paraphrase of the at-issue content of (3.2a):[28]

(3.4) There is exactly one banshee in Jeroen's attic and if it is quiet tonight, he will write his paper.

However, as Elbourne (2010) and Schoubye (2013) point out, obligatory QR'ing is illicit in this case, because *if*-clauses are scope-islands (cf. May, 1985):

27 The Fregean analysis, on the other hand, predicts that (3.2a) only presupposes, and does not assert, the existence of a unique banshee in Jeroen's attic. So, it avoids the problems just outlined for the Russellian, and explains why (3.3a) is an infelicitous follow-up (Elbourne, 2010: 8).

28 Sentence (3.1b) is also fixed if the definite description is QR'd above *wants* to achieve the following LF: [[the banshee in his attic] [λ_1 [Jeroen wants t_1 to be quiet tonight]] (cf. Elbourne, 2005: 147). This sentence does not make the existence of a banshee a desire of Jeroen's. However, this *de re* reading is unintuitive; it is incompatible with the speaker knowing that the realms of the supernatural are limited to fiction, whereas (3.1a) is compatible with such awareness.

(3.5) a. If every minister resigns, the government will collapse. *∀ > if

b. If most politicians vote for the bill, it will pass. *∀ > if

If 'every minister' could be raised above 'if', (3.5a) would have an accessible inverse scope reading meaning: for every individual minister x, if x resigns then the government will collapse. Such a reading is not available for (3.5a), so *if*-clauses must be islands. This prohibition on covert movement out of protases can also apply to definite descriptions, given constructions like those below:

(3.6) If [every boy]$_i$ wins the prize he$_i$ wants, the headmaster will be happy. (Elbourne, 2010: 5) *∀ > if

(3.7) If [most Democrats]$_i$ vote for the bill their$_i$ party proposed, the bill will receive a majority. *∀ > if

Focussing on (3.6), the island constraint dictates that, at LF, 'every boy' cannot be extracted from the *if*-clause in which it is embedded. So, the definite description cannot be QR'd either, because its NP argument contains a pronoun that is bound and c-commanded by 'every boy', which is trapped *in situ*. So, it is not *obligatory* for definite descriptions to take scope over *if*-clauses. Therefore, the Russellian remains saddled with the prediction that (3.2a) has an available narrow-scope reading with the at-issue truth-conditions paraphrased in (3.2b), contrary to fact.

3.1.2 | A Presuppositional Diagnosis

Strictly speaking, a contrast is observed in (3.3) because (3.3b) lacks an implication that (3.3a) possesses, namely:

(ε) There is exactly one banshee in Jeroen's attic.

That (ε) survives when the relevant 'the'-clause is embedded in a conditional antecedent indicates that the definite article has a presuppositional dimension, one that renders (ε) as a not-at-issue implication that projects.

This fact does not, by itself, establish that the *at-issue* content (= assertoric truth-conditions) contributed by our respective 'the'- and existential-'there'-clauses in utterances of (3.3a) and (3.3b) is distinct. To see this, let p = the proposition that *there exists exactly one banshee in Jeroen's attic*. Suppose that p is presupposed by the definite description in (3.3a). Given the Satisfaction Rules, p projects through the entire conditional, so an utterance of (3.3a) presupposes p. If a speaker is agnostic as to whether there is a banshee in Jeroen's attic, it cannot be common ground that there is exactly one banshee in Jeroen's attic, so presupposing that there exists such a unique entity should be infelicitous. Accordingly, (3.3a) is infelicitous because it presupposes and commits to there being exactly one such spectre, contrary to the agnostic preamble. Existential-'there'-clauses trigger no presuppositions, so (3.3b) is kosher, and the contrast is accounted for.[29]

29 Rothschild (2007: 88) observes a related contrast. Consider a context where p is not common ground, and it *cannot* be accommodated. Then, (3.2b) may be felicitously uttered, and (3.2a) not. This contrast is mysterious if descriptions only *assert* existence and uniqueness. The contrast is explained if descriptions presuppose existence and uniqueness. Only (3.2a) presupposes p, and so only (3.2a) will be infelicitous when uttered in a context where p cannot be accommodated.

Consequently, Elbourne's contrast establishes only that singular definites are presuppositional. This is sufficient to rule out the Russellian analysis, according to which neither existential-'there' nor 'the' are presupposition triggers. However, Abbott (2008) and Hawthorne & Manley (2012) have recently proposed 'Quantificational Presuppositional' analyses of the definite article. Abstracting from minor differences between their theories, here is a representative lexical entry:

Definition 3.1 [Quantificational Presuppositional (QP)]

$$[\![\text{the}]\!]^g = \quad \lambda F : \exists! x[F(x) = 1].\lambda G.\ \exists x(F(x) = 1 \wedge G(x) = 1)$$

'the F is G' $\begin{cases} \textbf{Assertion}\text{: there is an individual that is } F \text{ and } G \\ \textbf{Presupposition}\text{: there is exactly one } F \end{cases}$

That is, definite descriptions have the at-issue content of indefinite descriptions. The former differ only in that they also introduce uniqueness presuppositions.

A hybrid theory like QP is equipped to embrace Elbourne's (2010) contrast while toeing the (almost-Russellian) quantificational line. Rostworowski (2018: 20) points out that by hypothesis of QP, commitment to (ε) in an utterance of (3.8a) is secured by presupposition projection, in which case the contrast in (3.3) is accounted for. Therefore, he maintains, (3.8a) may well have the at-issue content paraphrased in (3.8b), wherein an existence claim appears:

(3.8) a. If the banshee in Jeroen's attic is quiet tonight, he will write his paper.

b. If there is a banshee in Jeroen's attic and it is quiet tonight, he will write his paper.

The existence of this hybrid QP theory would seem to reduce the efficacy of previous arguments supporting the presuppositional nature of singular definites: such arguments cannot be taken to vindicate the Fregean analysis alone.

Moving forward, the remainder of this chapter builds on a recent argument from Elbourne (2021), and aims to show that, despite any presuppositional element, the *at-issue content* assigned to the definite article by QP is inaccurate. Specifically, §3.4 considers the interaction between presupposed and asserted content, and shows that a stronger conclusion may be drawn from the original HKE argument, one that addresses Rostworowski's manouevre.

3.2 | The Argument from Redundancy

By hypothesis of the QP analysis, there is only a presuppositional difference between 'the F is G' and 'there is an F that is G', since the latter is an explicit parse of the at-issue content of the former. So, a 'the'-clause and its corresponding existential-'there' paraphrase should exhibit the same patterns of felicity when uttered in contexts where the presupposition triggered by the former clause is common ground.[30] However, this is not so. Elbourne (2021: 9) asks us to consider:

> FIELD: Bob and Mary are in the countryside, admiring a nearby field. They have been looking at it for a few seconds, unobstructed, and it is obvious to both that there is exactly one cow in the field. Neither has spoken since turning their gaze to this grassy meadow. Mary, an expert on agricultural matters, utters:

30 After all, the QP analyst is in a position to explain the contrast elicited in (3.3) only by pointing out that the presupposition of the 'the'-clause cannot be common ground when introduced immediately after an agnostic confession.

(3.9) The cow in that field is a Friesian.

Intuitively, her utterance is both felicitous and informative. The Fregean analysis of descriptions predicts this result: 'the cow in that field' presupposes that there is exactly one cow in the salient field, and this presupposed content is common ground in the stipulated context. The description thus succeeds in picking out that cow—call her 'Dottie'—and Mary's utterance of (3.9) asserts of Dottie that she is a Friesian (Elbourne, 2021: 9).

Matters are trickier for quantificational theories. Consider:

(3.10) a. #There is a cow in that field and it is a Friesian.

b. #There is an individual that is a cow in that field and a Friesian.

c. #Something is a cow in that field and a Friesian.

(3.11) a. #There is exactly one cow in that field and it is a Friesian.

b. #There is exactly one cow in that field and any cow in that field is a Friesian.

c. #There is an individual that is a cow in that field and unique in being a cow in that field and a Friesian.

In FIELD, uttering any of the sentences in (3.10) or (3.11) would be infelicitous, owing to a redundancy in their assertoric truth-conditions. To utter them "would produce the feeling that one was stating the obvious" (Elbourne, 2021: 10). However, the sentences in (3.11) are paraphrases of the at-issue content that the Russellian analysis predicts utterances of (3.9) to assert, and the sentences in (3.10) are paraphrases of the at-issue content that the QP analysis predicts utterances of (3.9) to assert. So, both analyses are inaccurate. What one asserts in uttering (3.9)

cannot be what one asserts in uttering any of (3.10) or (3.11), because these latter sentences are redundant in a manner that (3.9) itself is not.[31]

Some further consideration is required for the QP analysis. According to that theory, uttering (3.9) would not only assert something with the truth-conditions paraphrased in (3.10), as it would also presuppose the existence of exactly one cow in the salient field. To illustrate:

(3.12) The cow in that field is Friesian.

Assertion: #There is a cow in that field and it is a Friesian.

Presupposition: There is exactly one cow in that field.

However, this presupposition cannot reduce the infelicity of the predicted at-issue content. The content paraphrased in (3.10) is redundant because asserting it would state the obvious, so presupposing the obvious too will not help. Short of any independent explanation of this contrast in felicity, the Russellian and QP analyses simply assign the wrong at-issue truth-conditions to the definite article.

In the remainder of this chapter, I develop these data in favour of the Fregean analysis of definite descriptions. I start by considering utterances of conditionals that embed definite descriptions in *if*-clauses (§3.3). In §3.4 I will examine the relationship between presupposed and at-issue content, and will respond to the argument from Rostworowski (2018) that was presented in §3.1.2. Finally, §3.5 will round off by considering some related data involving interrogatives.

31 Assuming a Fregean analysis of (3.9), whenever its presupposition is satisfied the sentence will be true in the same possible worlds as the sentences (3.10) and (3.11). However, this does not mean that the sentences share *at-issue* (i.e., assertoric) content, due to the observed contrast (Elbourne, 2021: 25). Further, (3.10–3.11) are of course fine when uttered in contexts where it is *not* common ground that exactly one cow stands in the salient field. However, such a context would make an utterance of (3.9) infelicitous (or at least, in need of accommodation), due to the presupposition.

3.3 | Conditionals

Suppose that in FIELD, Mary is explaining to Bob that a local farmer, Martin, has been eager to procure dairy cattle of Dutch extraction:

(3.13) If the cow in that field is a Friesian, then Martin is happy.

To see how each analysis will handle this sentence, we first need some grasp of how complex structures inherit the presuppositions of their constituent parts. The canonical analysis of presupposition projection in conditionals is:[32]

Definition 3.2 [Conditional Projection]

For any sentence of the form 'If ϕ then ψ':

(i) If ϕ presupposes $\mathsf{P}(\phi)$, then $\mathsf{P}(\text{If } \phi \text{ then } \psi) = \mathsf{P}(\phi)$

(ii) If ψ presupposes $\mathsf{P}(\psi)$, then $\mathsf{P}(\text{If } \phi \text{ then } \psi) = \text{If } \phi \text{ then } \mathsf{P}(\psi)$

In Karttunen's terminology, conditional antecedents are *holes*: the presuppositions of any constituents embedded in an *if*-clause always project throughout the conditional. Conditional consequents are *filters*: the presuppositions of any constituents embedded in a matrix clause are inherited by the conditional so long as they are not filtered out. A matrix presupposition is filtered out if it is entailed

32 Inspired by Karttunen (1973), clause (i) is as close to orthodox as it gets. A non-exhaustive list of those who accept it: Abenina-Adar & Sharvit (2021), Beaver (2001), Elbourne (2010), Heim (1983), Karttunen & Peters (1979), Mandelkern et al. (2020), Potts (2005, 2015), Rothschild (2008), Schoubye (2009), van Rooij (2007), and von Fintel (2008). As Kripke (2009: 370) points out, it was likely Russell (1905) who first noticed that conditional antecedents can filter the presuppositions of their consequents. Clause (ii) is debated with respect to the 'proviso problem'. I lack the space to discuss this here, but it will not affect subsequent discussion. See van der Sandt (1992), Geurts (1996, 1999), Singh (2007), Kripke (2009), and Mandelkern et al. (2020).

by its antecedent. This also tells us which contexts utterances of conditionals are acceptable in (Beaver, 1997: 968):

- 'If ϕ then ψ' is felicitous in C iff $C \Vdash \mathsf{P}(\phi) \wedge (\text{If } \phi \text{ then } \mathsf{P}(\psi))$

The Fregean analysis encounters no problem, then. The definite description in (3.13) occupies the *if*-clause, so it follows from Conditional Projection that the entire conditional presupposes that there is exactly one cow in the salient field. By stipulation, this presupposition is common ground in FIELD. Composition can proceed unencumbered, so the Fregean analysis predicts the at-issue content asserted by an utterance of (3.13) to be what is paraphrased in (3.14), where 'd' is a referential tag for Dottie, given that the embedded description is an expression of type e:[33]

(3.14) If d is a Friesian, then Martin is happy.

The quantificational analyses have trouble here. It would be infelicitous to utter any of the following sentences in a scenario where it is obvious to the speaker—and, as far as the speaker is concerned, obvious to their intended audience—that there is exactly one cow standing before them:[34]

(3.15) a. #If there is a cow in that field and it is a Friesian, Martin is happy.

b. #If there is an individual that is a cow in that field and a Friesian, Martin is happy.

33 This is so on the assumption that the restrictor pronoun accompanying the definite description is referential. Where $g = [r \rightarrow \text{s}^*]$, and s^* is the salient field at the time Bob and Mary are looking at it, the formal denotation for the description will be: $\iota x x$ is a cow in that field in s^*. However, as noted, the compositional specifics are not relevant to the point under discussion: they serve only to illustrate how definite descriptions end up as items of type e.

34 Of course, this is simplified, so as to remain neutral about the proper treatment for conditionals.

c. #If something is a cow in that field and a Friesian, Martin is happy.

(3.16) a. #If there is exactly one cow in that field and it is a Friesian, Martin is happy.

b. #If there is exactly one cow in that field and any cow in that field is a Friesian, Martin is happy.

c. #If there is an individual that is a cow in that field and unique in being a cow in that field and a Friesian, Martin is happy.

To utter any of these sentences would be to leave open the fact as to whether there is a cow in the salient field.[35] Now, the sentences in (3.15) and (3.16) are paraphrases of what the QP and Russellian analyses predict the at-issue content asserted by an utterance of (3.13) to be, given the at-issue truth-conditions these analyses assign to the definite article. However, these paraphrases leave open an obvious fact about existence, which in this context produces a feeling of greater infelicity than stating the obvious: equivocating over the obvious.

No infelicity of this kind is produced by an utterance of (3.13) in the same context. The speaker of (3.13) seems to be assuming that exactly one cow stands before them, and leaves open only the possibility as to whether that cow is a Friesian. Therefore, the observed contrast in felicity indicates that what one *asserts* in uttering (3.13) cannot be what one asserts in uttering any of the sentences in (3.15) or (3.16), because the at-issue content of these sentences conditionalises on an existence claim that is taken for granted by an utterance of (3.13). Without an

35 I take this point to be uncontroversial, since it is applying part of the original insight from HKE that was covered in §3.1. Of course, none of those authors claimed that these paraphrases may be infelicitous in and of themselves in certain contexts. Further, I will soon consider the presuppositional technicalities introduced by the QP analysis, which of course HKE did not address.

independent explanation of this contrast, (3.15–3.16) list inaccurate paraphrases, in which case each quantificational analysis of the definite article is incorrect.

3.4 | Presuppositions to the rescue?

3.4.1 | Agnosticism

Before moving on, I highlight in what sense existence claims are 'left open' in the at-issue content of these conditionals. It is clear that (3.15a) conditionalises on the existence of a cow in the relevant field, because the antecedent is an overall conjunction. Other paraphrases, such as (3.15b) and (3.15c), do not have antecedents with overall conjunctions. Even so, there is a strong sense in which the existence of a cow in that field is left open in these constructions too.

To show this, we can run a version of von Fintel's (1998: 9) *agnostic* test. Take a sentence that makes the speaker explicitly agnostic about the existence of an F, where F = *cow in that field*, then provide some discourse continuations:[36]

(3.17) I don't know whether there is a cow in that field, but…

a. #…if the cow in that field is a Friesian, Martin is happy.

36 I am not suggesting that *if*-clauses are upward-entailing, i.e., that we can replace the predicate in an *if*-clause with one that is weaker and thereby preserve truth-value. As is well-known, conditional antecedents are are non-monotonic, so the inference from (3.1a) to (3.1b) is not licensed:

(3.1) a. If there is an x that is F and G, then ψ.
b. If there is an x that is F, then ψ.

I do not claim that (3.1a) must entail (3.1b). Rather, my point is that in uttering (3.1a) one's assertion in some way leaves open whether there is an F, just as an utterance of (3.1b) does. To see this, contrast (3.1a)—repeated below as (3.2a)—with (3.2b):

(3.2) I don't know whether there is a cow in that field, but…
a. …if there is an x that is a cow in that field and a Friesian, then ψ.
b. #…there is an x that is a cow in that field, and if x is a Friesian, then ψ.

(3.2a) is a felicitous continuation, so it must leave open the existence of a cow in the relevant field.

b. …if there is an individual that is a cow in that field and a Friesian, Martin is happy.

c. …if something is a cow in that field and a Friesian, Martin is happy.

Sentences (3.17b) and (3.17c) are felicitous discourse continuations after an agnostic avowal, so uttering these conditionals in each instance must, in the at-issue contribution, remain agnostic as to whether there is a cow in that field. If these sentences did not leave open whether there is a cow in that field, in some sense, they would be infelicitous continuations (cf. Soames, 2005).

Of course, picking up on Rostworowski's lesson from §3.1.2, the at-issue paraphrases in (3.17b–3.17c) may well capture what is asserted when one utters (3.17a). It is sufficient to explain the elicited contrast by appealing to the presuppositional dimension of (3.17a) as a source of infelicity. This is why I have used the agnostic test to establish only the more limited claim that the at-issue content paraphrased in (3.17b–3.17c) leaves open the existence of a cow in that field.

However, we can develop this observation into a potential response—on behalf of the QP theorist—to the objection of redundancy presented in §3.3. The conditionals in (3.15) only paraphrase the at-issue content that the QP analysis assigns to utterances of (3.13). According to this analysis, however, 'the' is also a presupposition trigger. A speaker who utters (3.13) therefore both asserts something like (3.15), and presupposes that there is exactly one cow in the salient field. Assuming the at-issue truth-conditions given in (3.15a), we arrive at the following representation:

(3.18) If the cow in that field is Friesian, Martin is happy.

At-issue: If there is a cow in that field and it is a Friesian, Martin is happy.

Not-at-issue: There is exactly one cow in that field.

Here's one way that the presuppositional, not-at-issue dimension could aid the QP-advocate. Although the assertion leaves open whether there is a cow in that field, the presupposition somehow balances out this assertoric hesitance because it maintains existential commitment. Generalising, the QP-advocate might appeal to the following recipe. For any conditional 'If ϕ, then ψ', where (i) the at-issue content leaves open q, (ii) ϕ presupposes p, (iii) p is common ground, and (iv) $p \Vdash q$, the infelicity of leaving open an obvious fact, q, is balanced by presupposing something that is common ground and which entails q, namely p.

3.4.2 | Aspectual 'Still'

The first problem for the suggested strategy is as follows. For some proposition p accepted as common ground, leaving open whether q in one's at-issue assertion, where q is entailed by p, is infelicitous. This infelicity cannot be remedied by presupposing something that entails q in an attempt to maintain commitment to the common ground, such as p itself. Consider:

> LEOMINSTER: Thomas and his friary are holed-up within Leominster Abbey. After hearing of the shocking Viking raid at Lindisfarne Priory, Thomas seeks to calm his brothers. During mass, he reminds them that God is eternal and perfect, being immutable, omniscient, omnipotent, and benevolent.

Assuming his faith remains steadfast, it would be infelicitous for any monk to utter the following conditional immediately after hearing Thomas' proclamation:

(3.19) A: I feel much safer knowing that God is watching over us.

B: #Yes indeed! If God is still eternal, then we're alright.

In this context, the common ground includes p = *God is eternal at times prior to the raid*. Now, let q = *God is eternal at times after the raid*. Due to the meaning of the predicate 'eternal', each of p and q entails the other.[37] If at any time t it was true that God was eternal, then for all times $t_1, \ldots, t_n$ after (and before) t, it will be true at those times that God is eternal.[38]

The particle 'still' has an aspectual use, presupposing that God's eternality was true at some earlier time t', while asserting that God is eternal at the time of utterance (cf. Ippolito, 2004: 128). So, asserting the conditional in (3.19) leaves open whether q yet presupposes p, where p entails q. As per the objection presented in §3.3, leaving open whether q at the level of assertion is infelicitous because q is entailed by the context set (which also entails p). The infelicity is not remedied by presupposing p—via the aspectual trigger—that projects through the conditional and thereby maintains commitment to the common ground. This spells a prob-

37 It matters not how 'eternal' is cashed out. On a *temporal* conception, the predicate expresses the property of existing at every moment of time. On an *atemporal* conception, the predicate expresses the property of existing at no moment of time. However, even atemporally, we can accept that at any time t, it is true at that time that God exists: this is distinct from it's being true that for any time t, it is true that God exists-at-t. A spatial analogy: it is true in Oxford that Westminster Abbey exists, but false that Westminster Abbey exists-in-Oxford. See Kretzmann (1966) and Stump & Kretzmann (1981) for discussion.

38 By stipulation, the presupposition is felicitous because it is uncontroversially accepted by the discourse participants in the context. Of course, a hearer may object to it, such as a monk wavering in his faith, but this would mean that p is not common ground, however. The point of LEOMINSTER is that it is supposed to mirror FIELD, in that what is left open by asserting the conditional is something that is uncontroversially accepted as common ground in the context of utterance.

lem for the suggested response on behalf of the QP analysis. Despite maintaining commitment to what is common ground, the presuppositional dimension of the definite description in (3.18) cannot reduce the infelicity of the at-issue content that the QP analysis predicts to be asserted when one utters (3.18) in a context like FIELD.

3.4.3 | Conventional Implicatures

Presuppositions are not the only kind of semantic content that is both conventional and projective. Conventional implicatures (CIs) possess these features too. In Pottsian (2005) terms, both presuppositions and CIs are not-at-issue, which is attested by the following parallels:

(3.20) a. Emiel stopped smoking.

b. If Emiel has stopped smoking, then…

⇝ *Emiel used to smoke* [Not-at-issue]

(3.21) a. Emiel, who used to smoke, is happy.

b. If Emiel, who used to smoke, is happy, then…

⇝ *Emiel used to smoke* [Not-at-issue]

In each pair, the at-issue content is blocked by the conditional operator. The not-at-issue content is unaffected, even though the lexical item or clause that encodes it sits within an *if*-clause. This is so whether we are dealing with a presupposition triggered by an aspectual verb, or a conventional implicature introduced by a nonrestrictive relative clause.

I now argue that presuppositions are not unique in being incapable of reducing the kind of infelicity under consideration. CIs are unable to perform this function too. So, we should be doubtful that the assertoric infelicities generated by QP are salvageable by means of any kind of not-at-issue content.[39] Before moving on, however, it is worth pointing out that one way in which presuppositions and CIs differ is in terms of how they interact with the common ground (this is discussed more extensively in Appendix 3.A.3). For any proposition q, it is felicitous to presuppose q only when q is common ground or easily accommodated, and infelicitous otherwise. However, it is usually felicitous to conventionally imply q only when q is *not* common ground. This difference is obviated in the example below, on the stipulation that the content of the relative clause is discourse-new.

With this in mind, we may construct a further counterexample to the strategy proposed on behalf of the QP analysis in §3.4.1:

(3.22) #If Chris, who used to smoke *Marlboro reds*, used to smoke and is coughing less, Mary will be pleased.

At-issue: If Chris used to smoke and is coughing less, Mary will be pleased.

Not-at-issue: Chris used to smoke *Marlboro reds*.

In this context, the common ground includes p = *Chris used to smoke Marlboro reds* so the context set also entails q = *Chris used to smoke*. The at-issue content

39 For reasons surveyed in Appendix 3.A, I take it that CIs are distinct from presuppositions. If so, the following discussion establishes that not-at-issue content in general cannot reduce the infelicities—generated by at-issue assertions—under consideration. However, even if one were to think that CIs are simply presuppositions (or *vice versa*), the following constructions would have to be considered anyway, in order to establish that no presuppositional content (or no CI content) can do the job required by the QP theorist to defuse the objection presented.

asserted by an utterance of the conditional in (3.22) leaves open q. The not-at-issue content conventionally implicated by the nonrestrictive relative clause commits to p. Both these propositions are entailed by the context set and p entails q. The infelicity of the speaker leaving open whether q is not reduced by commitment to p, however: (3.22) sounds deviant.

For the most part, (3.22) and (3.18) are semantically analogous. The latter has at-issue content that leaves open whether there is *a* cow in that field, but has not-at-issue content that entails this, namely that there is *exactly one* cow in that field. Similarly, (3.22) has at-issue content that hedges as to whether Chris used to *smoke*, but has not-at-issue content that entails this, namely that he used to *smoke Marlboro reds*. So, both have a not-at-issue dimension that entails (part of) what is left open in the at-issue assertion. Further, the stipulated context in each is such that the not-at-issue proposition is conventionally encoded and common ground. Given this, it makes no semantic difference that the not-at-issue content is conventionally implicated rather than presupposed.[40]

To sum up, we saw that according to the objection in §3.3, the QP analysis predicts that conditionals whose antecedents embed a definite description will be infelicitous when uttered in contexts where it is obvious to the speaker and their audience that the presupposition of said description is common ground. However, conditionals whose antecedents embed 'the'-clauses sound impeccable

40 A further reason to conduct a test example using nonrestrictive relative clauses is that it is easy to explicitly build in the required not-at-issue content. The reason for the complexity of example (3.19) in §3.4.2 is that, apart from the QP-analysis of 'the', it is difficult to find presupposition triggers in English that introduce presuppositions stronger than their at-issue content. For example, 'If John has stopped smoking and…' only presupposes that John used to smoke, so this not-at-issue content does not entail what is left open at the level of assertion. This is unlike the QP analysis in (3.18), which has it that the not-at-issue content does entail (part of) what is left open at the level of assertion.

in such contexts, which indicates that definite descriptions do not have the at-issue content assigned to them by the QP analysis.

A potential response, explored on behalf of the QP-theorist, appealed to the presuppositional dimension that this analysis assigns to definite descriptions. The claim was that presupposing an obvious fact p that is common ground reduces the infelicity of leaving open (in one's assertion) another obvious fact q entailed by the context set, where p entails q. However, natural language data indicate that not-at-issue content is incapable of performing this function (cf. §3.4.2–3.4.3). If anything, it would seem to cause infelicity, since the speaker is simultaneously committing to, and hedging over, a single fact:

(3.23) #If Theo—an expert diver—is a diver, Theo will own a wetsuit.

(3.24) #If Mark is a swimmer, then Mark—a swimmer—came to the party.

For example, where p = the proposition that *Mark is a swimmer*, McCready (2010: 7) points out that (3.24) is infelicitous precisely because the CI projects and commits the speaker to p, and yet the at-issue assertion conditionalises on p.

3.4.4 | Return to the attic

With this in place, we may return to Rostworowski's (2018) response to HKE. Recall that, according to HKE, (3.25b) is not an available reading for (3.25a):

(3.25) a. If the banshee in Jeroen's attic is quiet tonight, he will write his paper.

b. If there is exactly one banshee in Jeroen's attic and it is quiet tonight, he will write his paper.

This is because (3.25a) possesses an implication that (3.25b) lacks, a contrast made explicit by Elbourne's (2010) application of von Fintel's (1998) test:

(ε) There is exactly one banshee in Jeroen's attic.

Rostworowski's (2018: 20) response to this argument appeals to the QP analysis. If (ε) is an implication of (3.25a) due to presupposition projection, then so as long as one assigns a presuppositional dimension to the definite article, the contrast is explained. This, it is argued, is consistent with the definite article possessing quantificational truth-conditions that encode existence claims as part of the at-issue content of definite descriptions:

(3.26) If the banshee in Jeroen's attic is quiet tonight, he will write his paper.

a. **At-issue**: If there is a banshee in Jeroen's attic and it is quiet tonight, he will write his paper.

b. **Not-at-issue**: There is exactly one banshee in Jeroen's attic.

I do not dispute that this strategy explains the contrast illustrated in (3.25). However, this manoeuvre is committed to a further prediction, one not spelt out by Rostworowski. If, as the QP-theorist maintains, (3.26a) paraphrases the at-issue content asserted by an utterance of (3.26), then if an utterance of (3.26) is felt to imply (ε), the presupposition that (ε)—triggered by the definite description in (3.26)—must be capable of reducing the infelicity of leaving open whether there is a banshee in Jeroen's attic, content that is stipulated to be common ground.

However, as established in §3.4.1, presupposing some proposition p cannot reduce the infelicity of conditionalising on an obvious fact q when p is common

ground and p entails q. Therefore, if (3.26) really had the at-issue content in (3.26a), an utterance of (3.26) would simultaneously presuppose (ε) and leave open some proposition q = *there is a banshee in Jeroen's attic*, where (ε) is common ground and (ε) entails q. If this were so, an utterance of (3.26) would be infelicitous in contexts where (ε) is common ground. Clearly, there is no sense that an utterance of (3.26) is infelicitous in such a context: it is precisely in contexts where (ε) is common ground that the utterance sounds impeccable. Consequently, (3.26) cannot have the at-issue content specified in (3.26a). So, merely adding a presupposition to the definite article cannot be the correct response to HKE's objection.

If this is correct, then uniqueness presuppositions and existential assertions make for uneasy bedfellows in a semantic analysis of the definite article. So, HKE's conditional objection not only indicates that definite descriptions are presuppositional, but carries the stronger conclusion that definite descriptions do not assert existence either.

3.5 | Questions

To round off, I consider some data with regards to another operator that teases apart the at-issue and not-at-issue dimensions of meaning.

Recall the situation from FIELD, and suppose that Bob—ignorant of cattle breeds but eager to learn more—puts to Mary the question below, whose propositional answers are indicated in (3.27b):[41]

41 Nothing here hinges on a particular semantics for interrogatives, so I won't go into compositional detail. On the frameworks from Karttunen (1977) and Groenendijk & Stokhof (1982, 1984), we can make intelligible the notion of polar questions as having true propositional answers. Further, Heim (1994) shows that Groenendijk & Stokhof's semantics can be derived from Karttunen's. See Aloni (2005) and Groenendijk & Stokhof (1990, 2011) for further discussion.

(3.27) a. Is the cow in that field a Friesian?

b. $\left\{ \begin{array}{l} \textit{the cow in that field is a Friesian} \\ \textit{the cow in that field is not a Friesian} \end{array} \right.$

I adopt the following projection rule for questions, from Karttunen (1973):[42]

Definition 3.3 [Question Projection]

For any question ϕ? whose answer set is $\{p_1, \ldots, p_n\}$:

(i) If a sentence ϕ presupposes $\mathsf{P}(\phi)$, then $\mathsf{P}(\phi?) = \mathsf{P}(\phi)$.

(ii) ϕ? presupposes that one of $\{p_1, \ldots, p_n\}$ is true.

In other words, questions are holes for presuppositions, and they presuppose that they have a complete true answer. The following minimal pair illustrates:

(3.28) a. Mary stopped collecting stamps.

b. Did Mary stop collecting stamps?

Only (3.28a) entails that Mary has stopped collecting stamps, although both the declarative sentence and its interrogative counterpart presuppose that Mary used to spend her free time in the pursuit of philately.

Similarly, (3.27a) presupposes that there is exactly one cow in the salient field, owing to the presence of the definite article in the sentence. The Fregean analysis can interpret (3.27a) straightforwardly. In FIELD, both speakers are perfectly aware

42 Abenina-Adar & Sharvit (2021) discuss how the following rule interacts with the other Satisfaction Rules. For example, consider the disjunctive alternative question 'Does Daniel have no children, or are his children away?' The question does not inherit the presupposition that Daniel has children because the conjunction 'either Dan has no children or his children are away' does not. The conjunction does not because negating the left disjunct entails the presupposition of the right disjunct, i.e., that Daniel has children.

that there is exactly one cow standing before them. The presupposition is satisfied, and the situation pronoun associated with the description is referential, so the question is predicted to inquire of Dottie as to whether she is a Friesian.[43]

Intuitively, Bob's inquisition in (3.27a) concerns only the breed of Dottie. It would be infelicitous for him to utter any of the following questions, then:

(3.29) a. #Is there a cow in that field, and is it a Friesian?

b. #Is there an individual that is a cow in that field and a Friesian?

c. #Is there something that is a cow in that field and a Friesian?

Asserting any of the above sentences in the context described calls into question the existence of a cow in the field.[44] This is indicated by von Fintel's (1998) test:

(3.30) I don't know whether there is a cow in that field. I would like to know the following:

a. #…is the cow in that field a Friesian?

b. …is there a cow in that field, and is it a Friesian?

c. …is there an individual that is a cow in that field and a Friesian?

d. …is there something that is a cow in that field and a Friesian?

Existential-'there' is not a presupposition trigger, so the agnostic claim may be felicitously followed up by the questions in (3.30b–3.30d), which indicates that the at-issue contribution of each question must leave open whether there is a cow in the field too. However, the sentences in (3.29) are just paraphrases of (3.27a)

43 Assuming a natural *de re* reading.

44 The original insight—that quantificational truth-conditions for definite descriptions leave open existence when placed in the scope of questions—is due to Searle (1969). Rothschild (2007: 86) picks up the point, albeit briefly, to illustrate the presuppositional nature of definites.

according to the truth-conditions assigned to definite descriptions by the QP analysis. In addition to the conditional data, this provides further reason to think that the at-issue content of definite descriptions does not assert existence.[45]

In recognition of §3.4, the at-issue paraphrases in (3.29) are not exhaustive. The QP analysis also assigns not-at-issue content to any utterance of (3.27a), repeated below, in the form of a uniqueness presupposition:

(3.31) Is the cow in that field a Friesian?

At-issue: Is there an individual that is a cow in that field and a Friesian?

Not-at-issue: There is exactly one cow in that field.

Questions, like *if*-clauses and negation, are holes for presuppositions. This is clear in (3.31) because the presupposition of the definite description slips past the interrogative operator. In FIELD, it is common ground that there is exactly one cow in the salient field, so the presupposition is felicitous. However, presupposing this fact does not reduce the infelicity of questioning whether there is a cow in the salient field, an infelicity contributed by the at-issue content. For comparison:

(3.32) a. #Is it the case that Chris, who used to smoke *Marlboro reds*, used to smoke and is coughing less?

b. #Is it the case that Theo—an expert diver—is a diver and owns a wetsuit?

45 Note also that (3.30c–3.30d) cannot be asking something like 'is there a Friesian cow in that field?' This is because such paraphrases would only make sense if ⟦Friesian⟧ intersectively modified the definite description, but (3.27a) does not do this, nor does it have any such reading. Suppose there are two cows in the field: one is a Friesian, the other is a Brown Swiss. Then, ⟦the Friesian cow in that field⟧ is defined, but ⟦the cow in that field⟧ is not.

The at-issue content in each question inquires (in part) as to whether q, and q is entailed by the context set, because the nonrestrictive relative clause places into the common ground some content p that entails q. Each question is infelicitous because it questions whether some obvious fact holds, despite also conventionally implicating some stronger fact now obvious in the discourse context. The interaction of, and entailment relations between, the at-issue and not-at-issue content in (3.32a) and (3.32b) is analogous to (3.31). So, the presupposition of the definite article cannot reduce the infelicity of the at-issue paraphrase in (3.31).[46]

3.6 | Objections

One brand of objection that I lack the space to fully consider here is whether the infelicities of the at-issue paraphrases may be *independently* explained by theories of triviality or redundancy, such as those from Stalnaker (1978), Schlenker (2009), and Heim (1991). These theories save the QP analysis if they predict (e.g.) the sentences in (3.15), but not (3.13), to be redundant in FIELD. This would provide an independent explanation of the contrast, rendering it insufficient to establish that the paraphrases in (3.15) generate incorrect truth-conditions.

Fortunately, Elbourne (2021) deals with these objections extensively, and his considerations carry over straightforwardly in defense of the conditional and question examples that I have provided too. For example, Stalnaker's model has it that it is infelicitous for one to assert a proposition that is already common ground: update will not affect the context set, rendering the assertion redundant. However, this theory is not equipped to explain the *contrast* between (3.15) and

46 See Elbourne (2021: 12) for discussion of how the infelicities here are not due to prolixity.

(3.13). By hypothesis of QP, the sentences in (3.15) and (3.13) possess exactly the same at-issue content. Therefore, if (3.13) had the at-issue content of (3.15), Stalnaker's principle would predict it to sound redundant too.

Rather than rehearse responses to the theories from Schlenker and Heim—especially as I lack the space to do so—I leave the details to Elbourne (2021), and focus here on some novel objections to the arguments that I have presented.

3.6.1 | Discourse Markers

The conditionals considered in §3.3 are infelicitous because they leave open an obvious fact that is common ground. However, some not-at-issue content is capable of salvaging sentences like these, such as supplemental remarks that explicitly re-affirm commitment to content left open at the at-issue dimension:

(3.33) a. If there is an individual that is a cow in that field, which as we know there is, and it is a Friesian, Martin is happy.

b. If Chris used to smoke, which as we know he did, and is coughing less, Mary will be pleased.

This strategy won't help the QP advocate, for two reasons. First, the parentheticals in the sentences in (3.33) contribute not-at-issue content which explicitly refers to and affirms the truth of the first conjunct within each protasis. This is disanalogous to the role played by the presupposition in (3.18) and the conventional implicature in (3.22), which introduce not-at-issue content that entails, and is not entailed by, the first conjunct. For example, the not-at-issue content in (3.33a) entails only that there is a cow in that field, not that there is exactly one, so the supplemented

remark is not a plausible paraphrase of the not-at-issue content introduced in the original sentence (3.18). Second, these discourse markers cannot repair the infelicity of *interrogatives* that call into question an obvious fact that is common ground:

(3.34) #Is there an individual that is a cow in that field, which as we know there is, and is it a Friesian?

So, the QP theorist cannot salvage their predicted at-issue paraphrases with the supposition that, somehow, the sentences under consideration have not-at-issue content that matches the kind contributed by these explicit discourse markers.

3.6.2 | Asymmetric Projection

Rothschild (2008: 477) observes that the Stalnaker-Karttunen-Heim theory of presupposition projection that I am using generates asymmetric projection rules for conjunction:

Definition 3.4 [Conjunction Projection]

For any sentences ϕ and ψ:

(i) $\mathsf{P}(\phi \wedge \psi) = \mathsf{P}(\phi) \wedge (\phi \rightarrow \mathsf{P}(\psi))$

(ii) $\mathsf{P}(\phi \wedge \psi) \neq \mathsf{P}(\psi \wedge \phi)$

The motivation for this rule appeals to minimal pairs like the following:

(3.35) a. ?Johan's children are away and Johan has children.

b. Johan has children and his children are away.

Sentence (3.35a) is deemed awkward because a presupposition filter occurs after the trigger, whereas in (3.35b) the order is reversed. This contrast is predicted by Conjunction Projection. Let ϕ = *Johan's children are away* and ψ = *Johan has children*. In (3.35a), ϕ presupposes $\mathsf{P}(\phi)$ so the entire conjunction presupposes $\mathsf{P}(\phi)$. However, $\mathsf{P}(\phi) = [\![\psi]\!]^g$, so oddity results: the filter occurs after the presupposition and cannot cancel it. In (3.35b), let ϕ = *Johan has children*, ψ = *Johan's children are away*. The first conjunct ϕ has no presupposition and $[\![\phi]\!]^g$ entails $\mathsf{P}(\psi)$. It follows that (3.35b) does not inherit $\mathsf{P}(\psi)$; the presupposition is filtered out.[47]

Following this line of thought, the QP-advocate might argue that the at-issue paraphrases they assign to (3.13), which have conjunctive antecedents, are akin to (3.35a): any infelicity is independently explained because a presupposition filter occurs after the protasis. If so, the contrast between (3.13) and (3.15a–3.15c) will be independently explained, even supposing the QP analysis of definite descriptions. I repeat (3.15a) below:

(3.15) a. If there is a cow in that field and it is a Friesian, Martin is happy.

It is clear that the infelicity of (3.15a) and its kin in the context of FIELD is not because they fall foul of the filtering constraint. By hypothesis, the at-issue paraphrase in (3.15a) possesses no presupposition trigger. In fact, if there were a presupposition filter in the matrix clause of the conditional, that would only make the non-paraphrased sentence (3.13) infelicitous. This filtering constraint also cannot independently explain the infelicity of the sentences with nonrestrictive relatives used in §3.4.3: CIs cannot be filtered (cf. McCready, 2010: 7).

47 Sentences of a kind like (3.35b) are not redundant, only 'plodding' (Potts, 2015: 10).

3.6.3 | Movement Strategies

The QP-theorist might pursue another strategy to avoid the infelicity generated by their predicted at-issue paraphrases for the question in (3.27a), outlined in (3.29).

Unlike *if*-clauses, interrogative clauses are not scope-islands. So, perhaps the QP-advocate can claim that definite descriptions obligatorily undergo Quantifier Raising to take scope over interrogative operators. The result of this covert movement would yield the following at-issue paraphrases for utterances of (3.27a):

(3.36) a. There is a cow in that field, and is it a Friesian?

b. There is an individual that is a cow in that field, and is it a Friesian?

c. There is something that is a cow in that field, and is it a Friesian?

The first problem with this strategy is that, in the context we are considering, all of these sentences suffer from the same redundancy observed in Elbourne's (2021) original examples. The first conjunct has the speaker stating the obvious.

The second problem is that definite descriptions cannot obligatorily wide scope over interrogative operators. To see this, I start with Elbourne's (2013: 167) observation that the quantificational theorist has a problem with possibility modals. Precisely, none of the (b)-sentences below adequately capture the at-issue meaning of their (a)-counterparts:

(3.37) a. It is possible that the Director General has defected.

b. It is possible that there is an individual who is Director General and that any such Director General has defected.

(3.38) a. Possibly the senator took bribes from lobbyists.

b. Possibly there is an individual who is a senator and she took bribes from lobbyists.

The QP-theorist might appeal to covert movement to fix these (b)-paraphrases. If each definite description is QR'd and lands above the modal, the paraphrases below result:

(3.39) There is an individual who is Director General, and it is possible that he has defected.

(3.40) There is an individual who is a senator, and possibly she took bribes from lobbyists.

However, this is not a viable strategy in general because embedded descriptions cannot obligatorily scope over possibility modals. Adapting a point made earlier in §3.1.1, (3.41a) does not have a reading like (3.41b), and so in the former, the quantificational DP 'no boy' must sit under the possbility modal at LF, i.e., there can be no covert movement. The pronoun in 'the prize he wanted' is bound by 'no boy', so it is c-commanded by it. It follows that the definite description sits below the quantifier, and the modal too, at LF (Elbourne, 2013: 168):

(3.41) a. It is possible that [no boy]$_i$ has won the prize he$_i$ wanted.

b. [No boy]$_i$ is such that it is possible that he$_i$ has won the prize he$_i$ wanted.

To establish that definite descriptions cannot obligatorily QR above interrogative operators, all we need are descriptions embedded under possibility modals within interrogative clauses:

(3.42) a. Is it possible that [no boy]$_i$ has won the prize he$_i$ wanted?

b. Is it possible that [every defector]$_i$ has double-crossed the country he$_i$ is from?

If definite descriptions cannot obligatorily wide scope over possibility modals, they cannot obligatorily wide scope over interrogative operators, owing to constructions like those in (3.42). If movement is not obligatory, then the QP-theorist cannot rule out the fact that they predict the sentences in (3.29) to provide *available* at-issue readings for (3.27a), contrary to fact.

3.A | Appendix

3.A.1 | Conventional Implicatures

The discussion in §3.4.3 assumed that certain kinds of parenthetical clause contribute conventional implicatures. It assumed further that these implicatures are a kind of semantic content that is not-at-issue. To address potential skepticism about these assumptions, this appendix surveys some data in their support.[48]

Aside from presuppositions, there are lexically encoded semantic entailments of sentences that stand apart from the at-issue meaning of those sentences. Dubbed by Grice (1975) as 'conventional implicatures', these entailments are generated by a variety of devices and constructions, including expressives, appositives, and clausal nonrestrictive relatives (NRRs):

(3.43) *Conventional Implicature Devices/Constructions*

48 Many have noted that the first to spot these entailments was Frege (1892). Recent discussion was of course sparked by Grice (1975), and is explored further in Karttunen & Peters 1979, Bach 1999, Potts 2007, and Horn 2007, and elsewhere.

a. That bastard Haydon has defected to Moscow! [Expressive]

b. Rob, the invited speaker, has arrived. [Appositive]

c. Lynsey, who went to MIT, is watching *The X-Files*. [NRR]

(3.43a) conventionally implicates that the speaker feels negatively towards Haydon, while (3.43b) and (3.43c) include clausal material that provides additional information about the relevant subject of the matrix VP.

3.A.2 | What unites?

Presuppositions and CIs fall under the 'not-at-issue' taxon (cf. Potts, 2005, 2007, 2015). A systematic indicator of not-at-issue-ness is *projectivity* (Simons et al., 2010). We have seen that if a declarative sentence ϕ bears some presupposition $\mathsf{P}(\phi)$, then embedding ϕ under negation, an interrogative operator, or within an *if*-clause will ensure that $\mathsf{P}(\phi)$ remains intact. With respect to Karttunen's *holes*, observe that CIs project in a parallel manner, surviving embedding under the usual litany of operators that block at-issue entailments:

(3.44) *Presupposition*

a. Emiel stopped smoking.

b. It is false that Emiel stopped smoking.

c. If Emiel stopped smoking, then…

d. Did Emiel stop smoking?

$\rightsquigarrow$ *Emiel used to smoke* [Not-at-issue]

(3.45) *Conventional Implicature*

a. Lynsey, who attended MIT, enjoys *X-Files*.

b. It is false that Lynsey, who attended MIT, enjoys *X-Files*.

c. If Lynsey, who attended MIT, enjoys *X-Files*, then…

d. Does Lynsey, who attended MIT, enjoy *X-Files*?

⇝ *Lynsey attended MIT* [Not-at-issue]

Hence, the *not-at-issue* unification.

3.A.3 | What divides?

The Pottsian highlight: CIs are semantically inert with respect to at-issue meanings, whereas presuppositions can—and do—semantically interact with at-issue content (cf. Simons et al., 2010: 6). More precisely, presuppositions and CIs differ in three respects. The latter are (i) scopeless, (ii) strongly independent, and (iii) typically anti-backgrounded.

Scopeless

To be scopeless is to obligatorily project out of almost all environments. In Karttunen's terms, CIs always leak past plugs and slip through filters, unlike presuppositions:

(3.46) a. Jack believes that Pym, a successful spy, has defected.

b. GCHQ reported that Pym, a successful spy, has defected.

For each sentence in (3.46), the CI content projects past the plug. As identified by Potts (2005: 35) and McCready (2010), the above sentences are paraphraseable

as in (3.47a) and (3.47b). What this indicates is that conventionally implicated content behaves as though it always takes highest scope:

(3.47) a. Pym$_i$ is a successful spy, and Jack believes that he$_i$ has defected.

b. Pym$_i$ is a successful spy, and GCHQ reported that he$_i$ has defected.

Strongly Independent

The operative view throughout this thesis is that presuppositions are lexically encoded as partial functions (cf. §2.4.1). So, an utterance of a sentence ϕ will fail to assert a truth-evaluable proposition p if its presupposition $\mathsf{P}(\phi)$ is false.

Conventional implicatures present no such dependencies. An utterance of a sentence ϕ will manage to assert a truth-evaluable proposition p even if the not-at-issue content that it conventionally implicates is false (cf. Potts, 2015: 31). Observe that in the sentences listed under (3.45) above, the falsity of the implicated content does not stop the at-issue assertion from being truth-evaluable, unlike the sentences in (3.44), where the falsity of the presupposition would lead to a crash in computation. I flag this difference, in part, to point out that it does not affect example (3.19) in §3.4.2. In that example, the stipulated context ensures that the presuppositional content is common ground, so the fact that presuppositions are not strongly independent will not manifest a difference between that example and the ones in §3.4.3.

Antibackgrounding

CIs are typically felicitous only when their content is discourse-new, i.e., not already common ground:[49]

(3.48) Sweden may export synthetic wolf urine—sprayed along roads to keep elk away—to Kuwait for use against camels.[50]

The not-at-issue content introduced by this supplemental remark is not expected to be common ground, and it need not be accommodated, unlike new information that is presupposed. The contrast with presuppositions is observable in pairs like the following (cf. Potts, 2005: 112):

(3.49) Thom Yorke is a member of *Radiohead*.

a. #When reporters interview Thom, a member of *Radiohead*, he often seems bored.

b. And most musicians know that Thom Yorke is a member of *Radiohead*.

Backgrounding some content q renders a conventional implicature that q infelicitous, and a presupposition that q felicitous. Throughout §3.4.2–§3.4.3, this contrast is negligible because (i) the context furnishes the presupposed proposition as common ground, and (ii) the clausal NRRs are set up to introduce discourse-new information.[51]

49 There are special cases where CIs are exempt from this antibackgrounding requirement. See §4.5.2.

50 Associated Press (1995), reported in Beaver 2001: 20 and thereafter cited in Potts 2005: 33.

51 Another option would be to add the discourse particle 'of course' to NRRs, making it clear that the speaker is bringing to salience some backgrounded information, removing the infelicity of conventionally implicating what is common ground.

4 Presupposition Preclusion

Abstract Definiteness effects exhibit a puzzling asymmetry across appositives and clausal nonrestrictive relatives. I argue that this is explained, in part, by a situation-semantic decomposition of singular definites. When and how the uniqueness presupposition of a definite description is enforced can be stage-managed by manipulating syntactic situation pronouns. In turn, this adduces further support for a multidimensional analysis of at-issue and CI content.

4.1 | Introduction

Supplements introduce conventional implicature (CI) meanings (cf. 3.A.2). CIs are not-at-issue propositions that exhibit strong projectivity from Karttunenian holes, filters, and plugs, in addition to truth-conditional independence from main clauses. Appositives are a subset of supplements, mnemonically named because they consist of DPs syntactically apposed to an anchor:

(4.1) a. Across from her, Phil Porteous, the head housekeeper, a rich servile man with a big house in suburbia.[52]

b. Along with Patrick Mason, the director, Mr. Pearson has been….[53]

52 Le Carré, J. (1974), *Tinker, Tailor, Soldier, Spy*. Penguin Classics.
53 NY Times (1993), 'THEATER; Life May Be a Madness, but It's Also a Poem'.

c. The director–general of the French Tennis Federation, Gilles Moreton, said earlier this week that he could not imagine….[54]

d. Willy Brandt, the current West German Chancellor, is a KGB agent.[55]

In each sentence above, the interpolated material (= supplement) is the appositive. This is a DP, either a definite description or a proper name. The anchor is also a DP, and I reserve the term 'apposition' for the entire supplementation construction, i.e., anchor and appositive (cf. Huddleston et al., 2002: 1354).[56]

Throughout this chapter, my focus will be *definite appositions* (DAs). I use this label to identify appositions with two specific features, one syntactic and the other semantic. The syntactic feature is that the appositive of a DA is a definite description. The semantic feature is that this definite description is a specifying DP, one that corefers with its anchor. To illustrate:

definite apposition

Willy Brandt , the current West German chancellor , is a KGB agent

anchor *appositive description*

Appositive descriptions seem to lack uniqueness presuppositions proper. Observe that none of the following sentences are infelicitous. However, the internal NP-argument to each definite determiner has more than one individual in its

54 Reuters (2004), 'French Open postponement a possibility—sports minister'.

55 Littell, R. (2002), *The Company*. Macmillan (p.672).

56 Appositions are frequently referred to as 'nominal appositives' in some of the literature (cf. Potts 2005; Simons et al. 2010). This terminology is regrettable, for it suggests that appositions consist of apposed NPs. However, following Abney (1987), I subscribe to the DP-hypothesis, and identify proper names and (in)definite descriptions as DPs, not NPs. So, it is clearer to adopt Huddleston, Payne, Peterson, & Pullum's (2002) moniker of 'apposition' for the entire supplementation. I will also set aside issues concerning (i) integrated appositions ("the philosopher Lewis") [see Rieppel (2013)]; (ii) 'as'-parentheticals ("…, as the government announced,…") [see Potts (2002)]; and (iii) tag questions ("you're not going to wear that, are you?") [see Culicover (1992)].

extension. So, none of these descriptions seem to be presupposing that their head noun is a singleton co-extensive with their anchor. By hypothesis, such a presupposition would crash. Call this phenomenon *presupposition preclusion*:

(4.2) a. Roger Wicker, the Mississippi Republican senator, attended a state dinner. (adapted from Elbourne 2005: 155)

b. Armstrong, the cyclist, is training with his cycling buddies. (Potts, 2005: 119)

c. Anne Hathaway, the actress, starred in *Alice in Wonderland*.

d. Williamson, the Tory MP, is caught in a scandal.

e. Kripke, the television writer, is related to a famous logician.

f. Jane Seymour, the wife of Henry VIII, avoided beheading.

When definite descriptions anchor appositives, rather than forming appositives themselves, their uniqueness presuppositions return (cf. Potts, 2005: 138):

(4.3) On the nine o'clock news we saw

$$\left\{\begin{array}{l}\text{Ernie Kovacs, the comedian,}\\ \text{\#the comedian, Ernie Kovacs,}\end{array}\right\}\text{fall on his face.}$$ (Jackendoff, 1984)

(4.4) $$\left\{\begin{array}{l}\text{Jane Seymour, the wife of Henry VIII,}\\ \text{\#The wife of Henry VIII, Jane Seymour,}\end{array}\right\}\text{avoided beheading.}$$

Yet, the presence of definiteness effects cannot purely be down to whether or not a definite description occurs within an interpolated clause: precluded readings are unavailable for definite descriptions occupying other kinds of supplements. Re-casting each sentence in (4.2) with a clausal nonrestrictive relative (NRR) is

infelicitous. This suggests that the uniqueness presupposition of each supplemented definite description has returned in full force.[57]

(4.5) a. #Roger Wicker, who is the Mississippi Republican senator, attended a state dinner.

b. #Armstrong, who is the cyclist, is training with his cycling buddies.

c. #Anne Hathaway, who is the actress, starred in *Alice in Wonderland*.

d. #Williamson, who is the Tory MP, is caught in a scandal.

e. #Kripke, who is the television writer, is related to a famous logician.

f. #Jane Seymour, who was the wife of Henry VIII, avoided beheading.

This chapter develops a compositional explanation of these data, one that employs situation semantics in tandem with a development of Portner's (2007) framework for CI composition. I argue that definite descriptions apposed to proper names exhibit precluded readings due to how their restrictor pronouns are handled. In cases of definite apposition, the anchor pragmatically determines a variable assignment that maps the free situation pronoun accompanying the appositive description to the smallest situation consisting of only the referent of the anchor. An advantage of this analysis is that the unavailability of precluded readings for definite descriptions in NRRs is independently predicted. The restrictor pronouns of postcopular descriptions must be bound (cf.§4.5.3), so cannot receive a referential assignment.

In §4.2, I compare some syntactic and semantic features of appositions and NRRs. My analysis is developed in §4.3, and §4.4 discusses related data.

57 This is not to say that there are no contexts in which these sentences sound ok (cf. §4.3.5).

4.2 | Apposition and Nonrestriction

4.2.1 | Coreference

Appositive descriptions corefer with their anchor. In this respect, they "add information about an already specified individual" (Jackendoff, 1984: 29) by referring to that same individual under a descriptive guise. The referential nature of appositive descriptions boils down to these expressions being of type e within their clause. This distinguishes them from postcopular descriptions in NRRs, which are of predicative type $\langle e, st\rangle$. To illustrate, compare:

(4.6) #Williamson, who is the Cabinet minister, is caught in a scandal. [NRR]

(4.7) Williamson, the Cabinet minister, is caught in a scandal. [DA]

Informal gloss: stated out of the blue, the NRR expresses that Williamson is *the* Cabinet minister [*thumps table* : and there is none other!] So, infelicity results. The DA, however, expresses that Williamson is a Cabinet minister, with no table-thumping insistence that he is the only individual with such a property. It specifies for the listener which Williamson is under discussion, viz., the one currently serving as a senior MP and not the incumbent Wykeham Professor of Logic.

Semantic preview: in (4.6) the definite description occupies an NRR. Owing to its postcopular position, it is interpreted as a predicative DP, one that denotes the *property* of being the Cabinet Minister. When this meaning is lifted into the CI-dimension, the description is already of type $\langle e, st\rangle$. As a result, the not-at-issue proposition conventionally implied by (4.6) will end up looking like (4.8). On the other hand, the appositive description in (4.7) is of type e when it gets lifted into

the CI-dimension. The restrictor for the description is thus already saturated, for example, by a situation s^{**} consisting of only the referent of the anchor. So, the not-at-issue proposition conventionally implied by (4.7) is (4.9):

(4.8) $\lambda s : \exists! x\, x$ is a Cabinet Minister in s. Williamson is identical in s to $\iota x\, x$ is a Cabinet Minister in s

(4.9) λs. Williamson is identical in s to $\iota x\, x$ is a Cabinet Minister in s^{**}

This semantic non-equivalence is instructive given that, as I will argue in §4.3.5, CI propositions combine by default with the broadest topic situations available: possible worlds. As a result, (4.8) stakes a much broader uniqueness claim than (4.9), and does not exhibit presupposition preclusion.—Preview over.

4.2.2 | Indefinites

The supplemented material in (4.10) cannot involve genuine apposition. Appositive DPs are referential, and the supplemented indefinite DPs below are ascriptive, i.e., of predicative type $\langle e, st\rangle$ (Huddleston et al., 2002: 1358):[58]

(4.10) a. Maria, an expert climber, reached the summit. (cf. Potts, 2005: 124)

b. Pym, a dangerous agent, has an excellent command of German.

c. Jim Routon, a physician, shook his head as he explained how politicians had lost their souls.[59]

58 I assume that indefinites are quantificational. Although this is standard, I note that the treatment is by no means ubiquitous. Fodor & Sag (1982) and Kratzer (1998) allow that indefinites can be *referential* (in the latter case, by way of denoting variables for choice functions).

59 NY Times (1994), 'THE 1994 CAMPAIGN: THE VOTERS; For Voters, Hope Gives Way To Anger, Fear and Cynicism'. Retrieved from: https://www.english-corpora.org/coca/

Therefore, these supplements are not appositives. In fact, they find semantic kinship with postcopular constituents in NRRs, owing to their predicative type. So, the supplementations in (4.10) are in fact so-called 'reduced NRRs' that bear only surface resemblance to appositions (cf. Burton-Roberts, 1975: 414).[60]

To further demonstrate this point, we can adapt a test employed by Higgins (1979), Heller (2005), and Rieppel (2013: 419). Conjoined postcopular constituents must share a semantic type, so if a BE-complement is of type $\langle e, st \rangle$, that expression should be conjoinable with other one-place predicates. To determine the predicative statuses of indefinite and definite DPs within supplements, we can attempt to conjoin them with adjectival phrases (APs):

(4.11) a. Pym, who is a dangerous British spy and exceedingly hostile, should be avoided at all costs.

b. Pym, a dangerous British spy and exceedingly hostile, should be avoided at all costs.

c. *Pym, the dangerous British spy and exceedingly hostile, should be avoided at all costs.

d. Pym, who is the most dangerous British spy and exceedingly hostile, should be avoided at all costs.

These data establish two points. First, indefinite DPs cannot genuinely appose proper names or definite descriptions. The ability of *a dangerous British spy* to be coordinated with an AP in (4.11b) demonstrates that it is predicative, and not referential. This in turn indicates that the entire supplementation is not an

60 Potts (2005: 108) reaches a similar conclusion based on case-marking facts from German. So, reduced NRRs are cross-linguistically attested.

apposition, but a reduced nonrestrictive relative clause, semantically akin to (4.11a). Accordingly, the supplements in (4.10) also semantically function like postcopular predicates in sentences of the form 'x BE F'.

Second, observe that only (4.11c) is ungrammatical, owing to the attempt to coordinate an appositive description, an expression of type e, with an AP of type $\langle e, st\rangle$. As (4.11d) indicates, the distribution of predicative readings for definite descriptions is strictly limited to occurrences in postcopular clauses (cf. Rieppel, 2013: 419). This chimes with Strawson's (1950: 320) observation that definite descriptions can exhibit both predicative and referential uses, owing to whether they are a BE-complement or not.[61]

4.3 | Formal Analysis

From the preceding discussion, some illustrative generalisations may be drawn:

- Definite Apposition requires coreference.
- Appositive descriptions are of type e. Hence, they cannot be coordinated with APs within their clause.
- Postcopular definite descriptions are of type $\langle e, st\rangle$. Hence, they can be coordinated with APs within their clause.
- Indefinite DPs typically occur only in NRRs, reduced or not.

Certain questions are left open. What ensures coreference in cases of apposition, and how do appositive descriptions compose with their anchoring DP to yield CI

61 Commonly, a type-shifter from Partee (1986) is used to get predicative descriptions (cf. §4.3.4).

propositions? Why do these descriptions exhibit presupposition preclusion, in puzzling contrast to definite descriptions within NRRs?[62]

The remainder of this chapter answers these questions. I first take Portner's (2007) compositional variant to Potts' (2005) multidimensional logic for CIs, and make some adaptations. The situation-theoretic analysis of definite descriptions is implemented within this system for CI composition, delivering a compositional analysis of definite appositions (§4.3.3) and nonrestrictive relatives (§4.3.4).

4.3.1 | $\mathcal{L}_{CI}$

Potts (2005) introduces a typed lambda-calculus $\mathcal{L}_{CI}$ to analyse conventional implicature. In this system, natural language expressions are first indirectly translated to expressions in the *meaning language* of $\mathcal{L}_{CI}$, and $[\![\cdot]\!]^g$ interprets these expressions. This is because Potts' system distinguishes between *at-issue types* and *CI types*, a distinction regulated in the meaning language (Potts, 2005: 70).[63]

Although I follow Potts on descriptive matters regarding CIs, I do not take up his prescriptive treatment using $\mathcal{L}_{CI}$. The reason for this is twofold. First, the method of natural language interpretation used in this thesis is *direct*: scopally disambiguated LFs feed semantic interpretation. It would add unnecessary complexity to shift to a system of indirect interpretation at this stage. Second, Potts' indirect treatment does not interpret LFs, but *semantic parsetrees*, structures com-

62 Preclusion is not exhibited by genitival definite descriptions that occur as appositives. I investigate this phenomenon in Chapter 5.

63 In this system, the only well-formed complex CI types are functions from at-issue typed expressions to CI typed expressions. There are no functions with CI typed expressions as inputs (cf. McCready, 2010: 12). This asymmetry regiments two facts: (i) the strong independence of CI content from at-issue operators, (ii) that CIs introduce remarks about the at-issue dimension, not themselves (Potts, 2005: 60).

posed in the meaning-language of $\mathcal{L}_{CI}$. Without getting too bogged down in the details, this method has been criticised, *inter alia*, for being non-compositional. A special rule is required to interpret semantic parsetrees, one that renders the meaning of complex expressions to be no longer a function of the semantic values of their *immediate* constituents (cf. Amaral et al., 2007). For these reasons, I will take up and develop an alternative system for analysing conventional implicature, one that respects Montagovian (1974) compositionality.

4.3.2 | Alternative Semantics

Portner (2007) sketches a compositional variant to $\mathcal{L}_{CI}$, one amenable to the system of direct semantic interpretation employed throughout this thesis. The mechanics of at-issue and CI composition are not regulated via the type-theory, but by two interpretation functions. Where $[\![\cdot]\!]^g$ maps a phrase-structure into its at-issue meaning, $\{\!\{\cdot\}\!\}^g$ maps a phrase-structure into its CI meaning.[64]

We introduce the following composition rules (Portner, 2007: 413):

Definition 4.1 [Functional Application (revised)]

If α is a branching node with daughters $\{\beta, \gamma\}$, then for any assignment g, where $[\![\beta]\!]^g$ is a function whose domain contains $[\![\gamma]\!]^g$:

(i) $[\![\alpha]\!]^g = [\![\beta]\!]^g([\![\gamma]\!]^g)$

(ii) $\{\!\{\alpha\}\!\}^g = \{\!\{\beta\}\!\}^g \cup \{\!\{\gamma\}\!\}^g$

64 Portner (2007) focusses only on expressive meaning, so the application presented here naturally extends his model to the full gamut of CI meaning. This approach bears conceptual and technical affinities with two systems in the literature. Hamblin (1973) and Rooth (1985) each proposed an alternative-semantic interpretation function, for questions and focus-values, respectively. Further, semantic presuppositions can interact with at-issue content in ways that CIs cannot, so a partial function treatment for them remains appropriate (cf. Simons et al., 2010).

Definition 4.2 [Conventional Application (CA)]

If α is a branching node with daughters $\{\beta, \gamma\}$, then for any assignment g, where $\{\!\{\beta\}\!\}^g$ is a function whose domain contains $[\![\gamma]\!]^g$:

(i) $[\![\alpha]\!]^g = [\![\gamma]\!]^g$

(ii) $\{\!\{\alpha\}\!\}^g = \{\{\!\{\beta\}\!\}^g([\![\gamma]\!]^g)\} \cup \{\!\{\gamma\}\!\}^g$

The first point of each rule defines a method for at-issue composition. (4.1i) is standard Functional Application. (4.2i) passes up the at-issue meaning of a daughter to its mother node unmodified, reflecting the intuition that CI content comments upon—but leaves unaffected—at-issue meanings.[65]

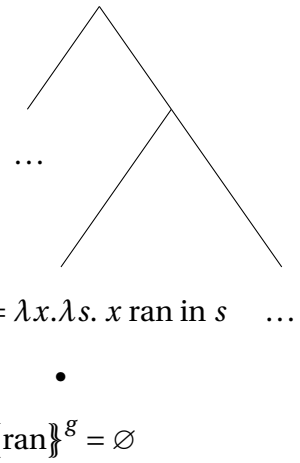
CI-meanings are composed via rules (4.1ii) and (4.2ii). The former harvests any CI content at the daughter nodes and constructs their union, and so this content percolates up to the mother node (and, eventually, to the root node) (cf. Gutzmann, 2015: 110). The latter operates similarly: when a CI functor takes an at-issue argument, its yield is built into a set along with any CI content of the sister to the functor. This meaning is then isolated in the semantic periphery, because there is no rule "which allows it to take additional arguments", or to serve as input to successive functors (Portner, 2007: 413). The following rule enshrines the fact that every lexical item may be interpreted by both functions:

Definition 4.3 [Lexical Terminals (revised)]

If α is a terminal node occupied by a lexical item, then $[\![\alpha]\!]^g$ and $\{\!\{\alpha\}\!\}^g$ are specified in the lexicon.

65 This rule seems a little alien at first glance, but an application is forthcoming in (4.12).

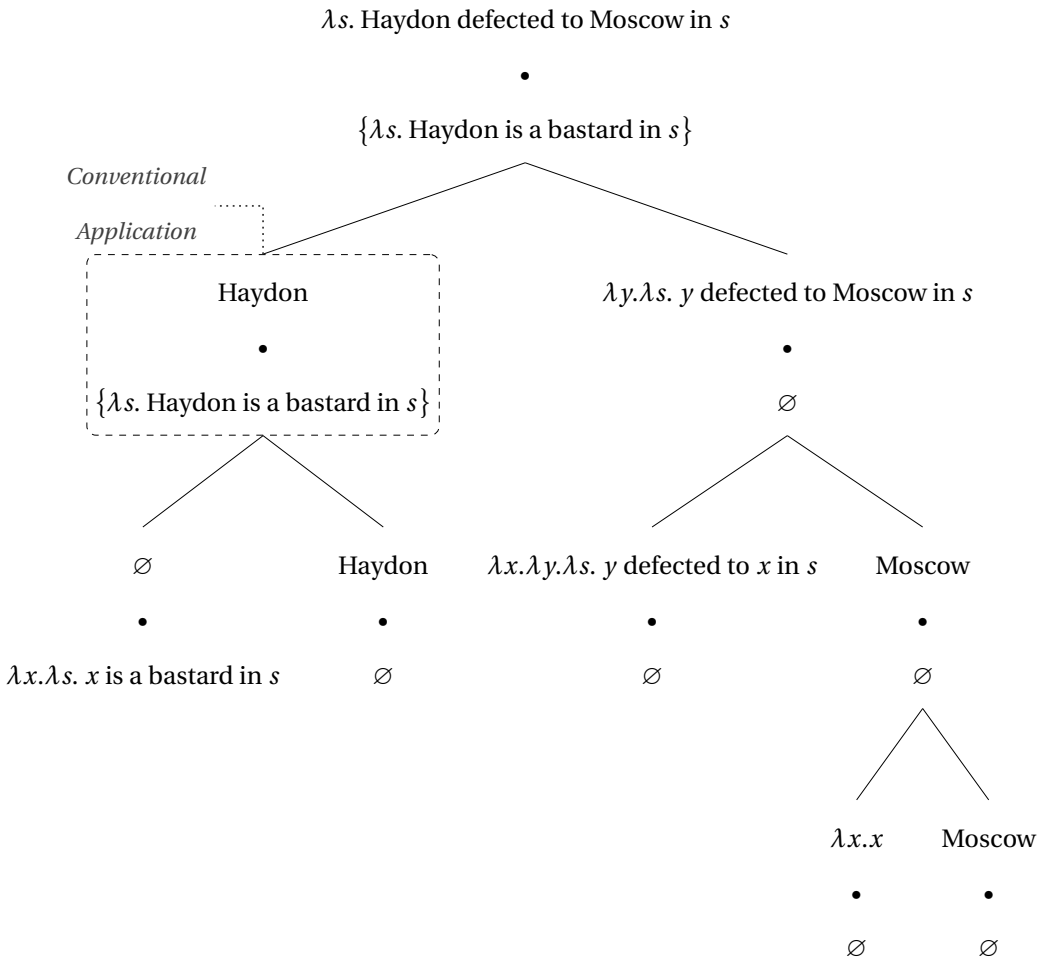
To enable the desired parallelism when calculating derivations, I will adopt an orthographic convention in the spirit—but not to the letter—of Potts (2005). Each node in an 'interpreted LF' will have two meanings, separated via a '•'. This is a notational convenience, one that allows the output of both interpretation functions to be represented simultaneously.[66] For example, 'ran' has at-issue content specified in the lexicon, but no CI-meaning. So, applying Lexical Terminals (revised) to a terminal node occupied by 'ran' can be represented as indicated to the right: the at-issue meaning sits above the bullet, and the CI meaning sits below. To see this in action, a toy derivation calculating both the at-issue meaning and CI meaning of (4.12) is provided. In this interpreted LF (= graphical derivation), a CI meaning is computed at each step of the derivation, so the approach is strictly compositional:[67]



66 I call these trees '*interpreted* LFs' because they are not LFs, in the sense of pure syntactic constructs. They are graphical *derivations*, because the material displayed above and below each bullet at a node is a metalanguage expression, delivered by one of our revised rules for semantic composition. I choose to lay bare semantic composition in this way for expository convenience, because we now deal with two interpretation functions. This tactic is inspired by Charlow (2018, 2019).

67 Some caveats. First, pejoratives are often accompanied by a non-demonstrative 'that': *that damn dog, that bloody co-worker*.... I treat this item as semantically vacuous, akin to the complementiser 'that' in a relative clause (Heim & Kratzer, 1998: 96). In cases involving a definite determiner (*the bloody dog*), Potts (2007: 187) suggests that 'the' combines with 'dog' in the first instance, and then this at-issue meaning combines with 'bloody' via Conventional Application. Second, it is notoriously difficult—and misguided, I think—to pin down a single lexical meaning for pejoratives like *bastard* (cf. Geurts, 2007). A proper treatment would likely follow the analysis sketched in Potts 2007: assigning expressive indices to pejoratives is able to account for both (i) their 'descriptive ineffability' and (ii) the variability of their meaning, hence *bastard* can be used affectionately or

(4.12) That bastard Haydon defected to Moscow!



All nodes, save for that indicated, combine by Functional Application (revised).

disparagingly. The flat-footed lexical entry given here is simply meant to illustrate the mechanics of CI composition. Finally, following Heim & Kratzer (1998: 62), the preposition 'to' is vacuous: $[\![\text{to}]\!]^g = [\lambda x.x]$. So, the PP 'to Moscow' is equivalent to $[\![\text{Moscow}]\!]^g$.

A pair of propositions of type $\langle s, t\rangle$ sit at the root node. So, our analysis delivers:

(4.13) $[\![\text{That bastard Haydon defected to Moscow!}]\!]^g =$

λs. Haydon defected to Moscow in s

(4.14) $\{\!\{\text{That bastard Haydon defected to Moscow!}\}\!\}^g =$

$\{\lambda s$. Haydon is a bastard in $s\}$

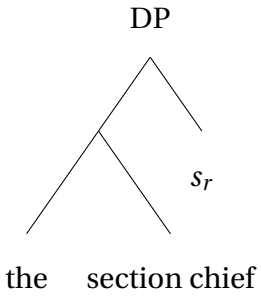
This is the correct result. We have two propositions, one for the at-issue meaning of (4.12), the other giving its CI meaning, which is not-at-issue.

4.3.3 | Anchored Situations

With this treatment of conventional implicature in place, I develop an analysis of definite appositions and NRRs, couched in situation semantics.

According to the Fregean theory of descriptions, definite descriptions presuppose the existence of an entity that uniquely satisfies the nominal argument to the definite article. The situation-theoretic implementation relativises this presupposition to *situations*, because the determiner's nominal content need only be uniquely instantiated in whatever situation the restrictor pronoun (s_r) is eventually interpreted as. The definite description in (4.15), for example, will have the internal structure schematically indicated below:

(4.15) The section chief is interrogating Kuryakin.



Assuming the restrictor pronoun is free, it will be assigned a (contextually determined) value by the assignment function. If (4.15) were uttered on a rainy night in Thames House, g might fix $[r \rightarrow s^{**}]$, where s^{**} is a suitably small situation consisting of an MI5 holding cell, Kuryakin, and his interrogator. The upshot is that in the present situation-semantic system, $[\![\text{the}]\!]^g$ obligatorily takes a situation pronoun as an argument. Now, the role of a supplement is to comment on at-issue content. The specific purpose of an apposition is to introduce not-at-issue content that specifies its anchor (cf. Huddleston et al., 2002: 1537). I propose that within any appositive description, the restrictor pronoun s_r accompanying the definite article will always be free, not bound.[68] Since the anchor heads a definite apposition, it ensures that the linguistic context will determine an appropriate variable assignment for the adjoined appositive description.[69] Precisely, context will update the assignment function to map s_r to the smallest situation consisting of only the referent of the anchor, i.e., to a thick particular in $\mathcal{D}_s$. The compositional motivation for this treatment is that appositive descriptions are of type e, indicated by the coordination test in §4.2. So, typing constraints dictate that the uniqueness presuppositions of appositive descriptions must be enforced before these descriptions percolate into the CI dimension.

To see how this will work, I introduce a constraint on variable assignments:

68 This assumption is defended in §4.5.3.

69 Syntactic adjacency is mandatory, as evidenced by movement constraints (Potts, 2005: 104).

Definition 4.4 [Appropriateness]

A context c is appropriate for an LF Υ only if c determines some g_c whose domain includes every index with a free occurrence in Υ (Heim & Kratzer, 1998: 243).

For example, out of the blue utterances of (4.16) and (4.17) are inappropriate because the utterance context doesn't determine a suitable variable assignment to resolve the free occurrences of the pronouns:

(4.16) #She$_1$ should be invited.

(4.17) #He$_1$ is incompetent and she$_2$ is clueless.

In an enriched linguistic context, utterances of the same sentences are felicitous:[70]

(4.18) Everyone loves Maria! She$_1$ should be invited.

(4.19) I don't understand Jeb or Sarah. He$_1$ is incompetent and she$_2$ is clueless.

In each of (4.18) and (4.19) the pronouns receive referential interpretations, and refer to individuals mentioned in the initial sentence, individuals who are contextually salient at the point of processing the pronouns (Heim & Kratzer, 1998: 240).[71] For example, context will determine an assignment $g = [1 \rightarrow \text{Maria}]$ for an utterance of (4.18), such that $[\![\text{She}_1 \text{ should be invited}]\!]^g = \left[\lambda s.\ \text{Maria should be invited in } s\right]$. Definite descriptions may be similarly inappropriate:

70 As is mandated within static systems, coreference is required here because an indistinguishable interpretation cannot be achieved via quantifier raising and binding (cf. Reinhart, 1983). QR would introduce a λ_i operator whose c-command domain—by definition—is not transsentential, thus failing to produce a bound-variable reading after an application of Predicate Abstraction.

71 The only other way for referential pronouns to pick up referents is via extra-linguistic context. So-called *deictic* uses of pronouns involve demonstratives and the like:

(4.1) [Pointing at Bill] He$_1$ is invited to the party.

Following Heim & Kratzer (1998), I assume that the distinction between deixis/anaphora is of little theoretical importance, as it is cross-cut by the bound/referential divide.

(4.20) [A reporter is in a restaurant full of senators, looking for a quote. He comes across an aide, who tells him]: #Go talk to the senator.

The description in (4.20) is *incomplete* because its nominal content has more than one satisfier in the context of utterance, so its presupposition crashes during composition. Note, then, that in the current situation semantic system, incompleteness is in part an epiphenomenon of inappropriateness.[72] The utterance context doesn't determine a suitable variable assignment for the restrictor pronoun accompanying the definite description, so a narrow sub-situation of the utterance context—containing exactly one senator—cannot be fixed. However, the anchor of a DA is sufficient to guarantee an appropriate assignment:

(4.21) [Same context as (4.20)]: Go talk to Roger Wicker, the senator.

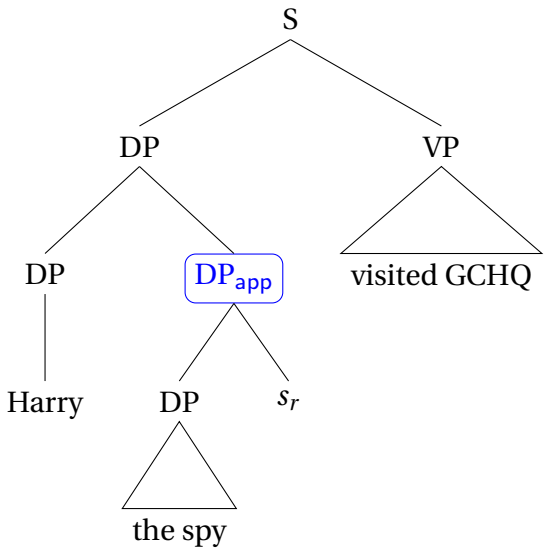
The value assigned to the restrictor pronoun will be the smallest situation containing only the referent of the anchor. This situation is the *thick particular* of the referent of the anchor, the referent with all of its non-relational properties (Kratzer, 1989: 613).[73] Within DAs, the close syntactic adjunction of an appositive to its anchor enforces this pragmatic determination, ensuring coreference.

Here's an application. (4.22) will have the LF below:

(4.22) Harry, the spy, visited GCHQ.

72 'In part' because if the description in (4.20) were, for some reason, bound, its presupposition would end up being enforced against the topic situation, so would not depend on the assignment function to receive a determined value. See §4.3.5 for further discussion.

73 In cases where the head noun of an appositive description is relational, the situation will differ slightly. See §4.5.4 for further discussion.



We allow that the anchor pragmatically determines an assignment $g : [r \rightarrow s^{**}]$, where s^{**} is part of the actual world, being the smallest situation consisting only of Harry's thick particular. By stipulation, Harry is in fact a spy, so this situation will include Harry and his instantiating of the property of being a spy.[74]

The calculation below demonstrates how this variable assignment works in practice. Presupposition preclusion is accounted for, because the presupposition of the definite description is tested only against the thick particular of the anchor, so uniqueness is trivially satisfied if the referend in fact has the property in question:

74 If Harry was not in fact a spy, s^{**} would not include his instantiating the property of being a spy. Consequently this situation would fail to satisfy the presupposition, as desired.

(4.23)

$$
\begin{aligned}
& [\![\text{the spy } s_r]\!]^{[r\to s^{**}]} \\
= \quad & [\![\text{the}]\!]^{[r\to s^{**}]}([\![\text{spy}]\!]^{[r\to s^{**}]})([\![s_r]\!]^{[r\to s^{**}]}) && \text{(FA)} \\
= \quad & [\![\text{the}]\!]([\![\text{spy}]\!])(s^{**}) && \text{(PT)} \\
= \quad & \big[\lambda f.\lambda s : \exists!x[f(x)(s)=1].\ \iota x[f(x)(s)=1]\big] \\
& (\lambda x.\lambda s.\ x \text{ is a spy in } s)(s^{**}) && \text{(LT)} \\
= \quad & \big[\lambda s : \exists!x[\text{spy}(x)(s)=1].\ \iota x[\text{spy}(x)(s)=1]\big](s^{**}) && (\lambda\text{C.I}) \\
= \quad & \iota x\ x \text{ is a spy in } s^{**} && (\lambda\text{C.I})
\end{aligned}
$$

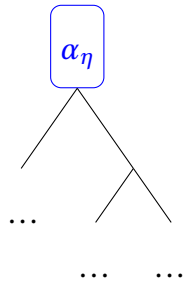
However, this cannot be the whole compositional story. Problematically, the derivation above leaves the description as at-issue. It is not yet occupying the CI dimension, despite being an appositive. Further, the denotation is of type e, so there would be a type mismatch if we attempted to combine this result with the denotation of its anchor. To resolve these points, I first define an operation, the app-shifter, which takes items of type e and produces values of type $\langle e, st\rangle$:[75]

(4.24) $\mathsf{app} := \big[\lambda x.\lambda y.\lambda s.\ y = x \text{ in } s\big]$ $\qquad \mathsf{app} : \langle e, \langle e, st\rangle\rangle$

Supplements are marked prosodically by intonational shifts: pauses in speech indicate whether material is interpolated from, or appended to, a main clause. In print this is achieved via commas, em dashes, and so on (cf. Huddleston et al., 2002). The prevailing idea is that these intonations are underlaid at LF by so-called

75 This operation mimics Partee's (1986) ident type-shifter, but is designated for CI composition. Assuming that proper names are of type e, this operation is required to interpret appositive proper names too. Discussion of ident is in §4.3.4.

feature terms, whose semantic contribution is to induce the requisite meaning shifts (cf. Potts 2005, Portner 2007). Accordingly, app is a feature term that takes items of type e and yields CI meanings. To implement it—and shifters like it—I redefine Potts' (2005: 66) rule for *feature semantics*, using our Portnerian system:[76]



Definition 4.5 [Feature Semantics (FS)]

If α_η is a node marked by some designated feature η that yields meanings in the domain of $\{\!\{\cdot\}\!\}^g$ and not $[\![\cdot]\!]^g$, then for any assignment g: if $[\![\alpha]\!]^g$ is in the domain of η:

(i) $[\![\alpha_\eta]\!]^g = \varnothing$

(ii) $\{\!\{\alpha_\eta\}\!\}^g = \eta([\![\alpha]\!]^g)$

We want LF nodes that are feature-marked to lack an at-issue meaning and possess only a CI meaning. Accordingly, Feature Semantics states that the CI meaning of a node marked with 'η' is the result of feeding the *regular* at-issue meaning of this node into η. The regular at-issue meaning of a marked node is just a function of the at-issue value(s) of its daughter node(s).[77] Since this regular meaning is consumed by the type-shifter introduced by the rule, the rule makes it unavailable to be the at-issue meaning of the marked node.[78] To illustrate, I re-visit and derive a not-at-issue meaning for the marked DP node from (4.22). As shown, the 'regular' at-issue meaning appears in the scope of app, and this regular meaning

76 Portner (2007) does not define this rule.
77 I briefly elaborate on this in Appendix 4.A.
78 So, the result of marking a node is to cause a dimension-shift via the designated feature term.

is a function of at-issue values of the daughter nodes in the LF from (4.22):[79]

$$
\begin{aligned}
& \{\!\{\mathrm{DP}_{\mathsf{app}}\}\!\}^{[r\to s^{**}]} & \\
= \quad & \mathsf{app}([\![\text{the spy } s_r]\!]^{[r\to s^{**}]}) & \text{(FS)} \\
= \quad & \mathsf{app}([\![\text{the}]\!]^{[r\to s^{**}]}([\![\text{spy}]\!]^{[r\to s^{**}]})([\![s_r]\!]^{[r\to s^{**}]})) & \text{(FAx2)} \\
= \quad & \mathsf{app}([\![\text{the}]\!]([\![\text{spy}]\!])(s^{**})) & \text{(PT)} \\
= \quad & \mathsf{app}(\left[\lambda f.\lambda s : \exists!x[f(x)(s)=1].\ \iota x[f(x)(s)=1]\right] & \\
& (\lambda x.\lambda s.\ x \text{ is a spy in } s)(s^{**})) & \text{(LTx2)} \\
= \quad & \mathsf{app}(\left[\lambda s : \exists!x[\text{spy}(x)(s)=1].\ \iota x[\text{spy}(x)(s)=1]\right](s^{**})) & (\lambda\text{C.I}) \\
= \quad & \mathsf{app}(\iota x\, x \text{ is a spy in } s^{**}) & (\lambda\text{C.I}) \\
= \quad & \lambda y.\lambda s.\ y \text{ is identical in } s \text{ to } \iota x\, x \text{ is a spy in } s^{**} & (\lambda\text{C.I})
\end{aligned}
$$

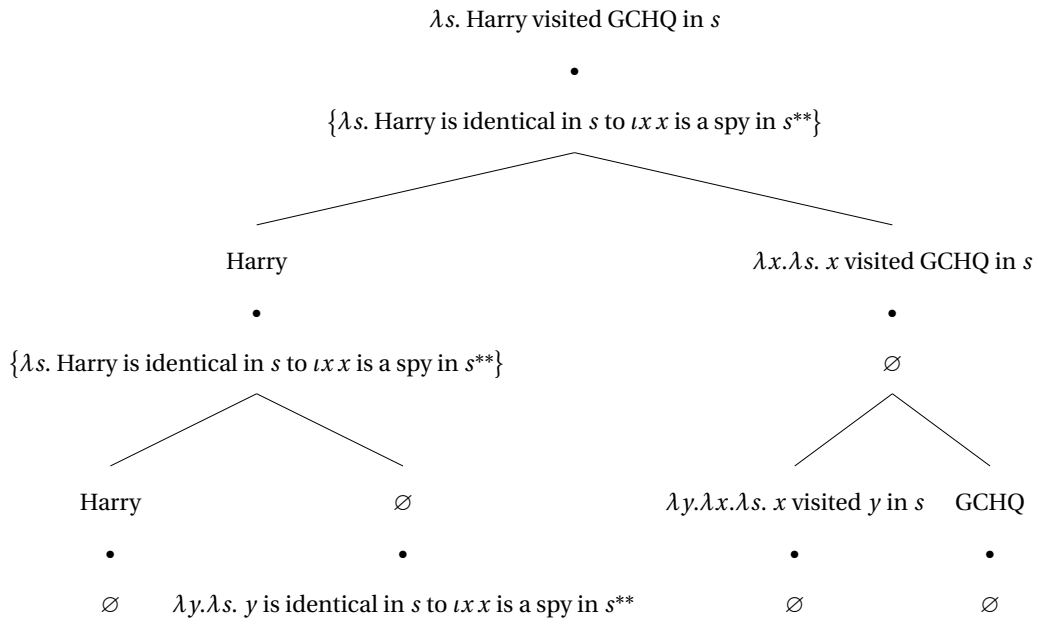
Further, Feature Semantics tells us that $[\![\mathrm{DP}_{\mathsf{app}}]\!]^{[r\to s^{**}]} = \varnothing$.

The purpose of this rule is twofold. First, we don't want to treat features as phonologically null lexical items that compose with at-issue meanings via Conventional Application. This method would duplicate their at-issue arguments, which is undesirable (cf. Potts, 2005: 66). Second, this rule regulates the use of features, conceived as type-shifting operations designated for CI composition. For any feature η, Feature Semantics ensures that η can only operate on the entire, regular meaning of a node marked by 'η'. LF nodes will be marked only if they

79 The coordination test in §4.2.2 indicated that appositive descriptions are of type e within their interpolated clause (i.e., when at-issue), hence the description here is treated as delivering an expression of type e that feeds app to produce a CI meaning.

are morphosyntactically indicated to be supplemental. So, Feature Semantics reserves CI-meanings for the right kind of LF constituents.

The overall derivation for (4.22) is depicted below, in graphical format. The meaning for the appositive is taken from the (linear) derivation given just above:



The CI-meaning of the appositive description composes with its anchor through Conventional Application. This node then combines with the VP by Functional Application (revised). Two propositions sit at the root node:

(4.25) Harry, the spy, visited GCHQ.

a. **At-issue**: λs. Harry visited GCHQ in s

b. **Not-at-issue**: $\{\lambda s$. Harry is identical in s to $\iota x\, x$ is a spy in $s^{**}\}$

Due to the triviality of the uniqueness implication, the apposition effectively states that Harry is a spy, and so specifies which individual is under discussion.

As desired, the *at-issue* content may be true or false, depending on the topic situation it combines with. However, no matter our choice of topic situation, the CI content is true. Consequently, this analysis correctly predicts that sentences of a form like (4.26) will have the following possible combinations for truth of at-issue content and truth of CI content, respectively:

(4.26) Harry, the spy, visited GCHQ.

a. $\langle 1,1\rangle \approx$ Harry visited GCHQ and he is a spy.

b. $\langle 0,1\rangle \approx$ Harry did not visit GCHQ but he is a spy.

c. $\langle 1,\#\rangle \approx$ Harry visited GCHQ but he is not a spy.

d. $\langle 0,\#\rangle \approx$ Harry did not visit GCHQ and he is not a spy.

The '#' indicates infelicity due to a presupposition crash. The assignment function will provide the smallest situation containing only Harry's thick particular, so if Harry is not in fact a spy, this situation will falter at the domain condition enforced by the definite article, resulting in a crash for CI composition. Presupposition failure will not affect at-issue composition: the referent of the anchor is an at-issue meaning that remains available to combine with the denotation of the VP at LF.

So, situation semantics enables the uniqueness presupposition of an appositive description to be pragmatically "anchored" to its apposed partner, via an assignment for the restrictor pronoun. This yields an at-issue referential expression of type e. The Pottsian-inspired piece of machinery is Feature Semantics: this lifts appositive descriptions into the CI-dimension by applying app, and acts as a semantic filter on the pragmatic mechanism. Conventional Application will yield a necessarily false CI proposition if, somehow, the appositive description were to

receive a variable assignment providing a small situation containing exactly one spy who is not Harry.[80]

4.3.4 | Nonrestrictive Relatives

The computation of sentences like (4.27) unfolds as follows. Relative to an assignment g, the anchor pragmatically determines an update $[r \rightarrow \vartheta]$ where ϑ is the smallest situation consisting only of the referent of the anchor. After composing with its NP argument, the uniqueness presupposition of the definite is enforced against ϑ. If all goes well, a definite description of type e results. This is shifted by app so that the apposition eventually yields a CI proposition:

(4.27) Harry, the spy, visited GCHQ.

Presupposition preclusion is exhibited because appositive descriptions test for uniqueness against only the referent of their anchor. Now consider:

(4.28) #Harry, who is the spy, visited GCHQ.

While the uniqueness presupposition of the appositive in (4.27) feels precluded, the presupposition of the description in (4.28) has returned in full force.[81] I contend that this contrast is compositionally rooted in an independent distinction

80 Values of '0' in the second dimension would arise in such a case. However, these cases seem linguistically impossible. Appositions lack any readings where their appositive successfully refers to an individual other than the referent of the anchor.

81 Another contrast similar to this is also observed by Potts (2005: 119):

(4.1) a. #Armstrong, who is the cyclist, is training with his cycling buddies.
b. Armstrong, who is a cyclist, is training with his cycling buddies.

I argue that the relative clause forces a predicative reading of definite descriptions. As will become clear from the analysis provided, the basic distinction between these sentences is that the former presupposes that the relevant nominal property has a singleton extension containing only the antecedent to the NRR. The postcopular indefinite DP, of course, presupposes no such thing.

between referential descriptions like the appositive in (4.27) and postcopular descriptions like that in (4.28). Postcopular descriptions are (i) of type $\langle e, st\rangle$ and not of type e, and (ii) their situation pronouns are bound.[82]

Two reasons support (i). First, as argued in §4.2.2, definite descriptions can be coordinated with APs in *postcopular* clauses, but appositive descriptions cannot be coordinated in this manner. This tells us that definite descriptions must shift to predicative type when complement to a copula (cf. Partee, 1986: 119). So, when they occur as postcopular constituents in NRRs, definite descriptions are predicative *before* being lifted into the CI-dimension. Appositive descriptions undergo no such shift, which is why they are treated as expressions of type e before being lifted into the CI-dimension. Second, Elbourne (2013: 117) notes that an advantage of type-shifting postcopular descriptions is that we retain a uniform meaning for 'is', namely the 'is' of predication. The type-shifting is accomplished by Partee's (1986: 121) ident, a shifter almost identical to app, except it takes items of type e and yields meanings of type $\langle e, st\rangle$ available for *at-issue* interpretation:

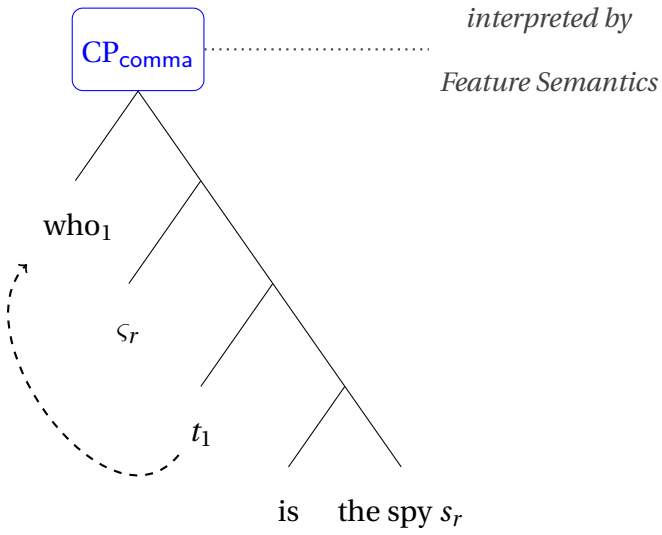
(4.29) $\mathsf{ident} := j \rightarrow \left[\lambda y.\lambda s.\ y = j \text{ in } s\right]$ $\qquad\qquad \mathsf{ident} : \langle e, \langle e, st\rangle\rangle$

(4.30) $[\![\text{is}]\!]^g = \lambda f.\lambda x.\lambda s.\ f(x)(s) = 1$

With these pieces in place, we can analyse the definite description in (4.28). This postcopular description has its restrictor pronoun bound. As composition unfolds, this pronoun will remain bound. The uniqueness presupposition will be inherited by the propositional denotation of the CI, to be tested against whatever topic situation is eventually paired with this function.

82 Regarding (ii), the situation pronoun doesn't need to be bound to ensure type compatibility. However, binding seems to be required, in light of various data that I will present in §4.4 and in §4.5.3. For now, (ii) is treated as a working assumption.

To illustrate precisely, I start by deriving a value for the nonrestrictive relative clause in (4.28), assuming it has the following LF:



Here's how this works. The nonrestrictive status of the relative clause is marked at PF by an intonational pause, which is represented at LF by marking the CP-node for this clause with 'comma'. This operation shifts predicative clauses of type $\langle e, st\rangle$ into the CI dimension (cf. Potts, 2005: 98). As with app, it manages this because it takes at-issue meanings and yields values in the domain of $\{\!\{\cdot\}\!\}^g$:

(4.31) $\mathsf{comma} := [\lambda f.f]$ $\qquad\qquad \mathsf{comma} : \langle\langle e, st\rangle, \langle e, st\rangle\rangle$

So, to interpret this node we first apply Feature Semantics, so that the regular at-issue value computed for the relative clause is fed into comma. This yields a CI

meaning for the node, i.e., a semantically nonrestrictive relative clause:[83]

$\{\!\{\text{CP}_{\text{comma}}\}\!\}^{g}$

$=$ $\text{comma}([\![\text{who}_1 \lessdot_r t_1 \text{ is the spy } s_r]\!]^{g})$ (FS)

$=$ $\text{comma}(\lambda z.[\![\lessdot_r t_1 \text{ is the spy } s_r]\!]^{g^{z/1}})$ (PA)

$=$ $\text{comma}(\lambda z.\lambda s.[[\![t_1 \text{ is the spy } s_r]\!]^{g^{z/1,s/r}}](s))$ (SB)

$=$ $\text{comma}(\lambda z.\lambda s.[[\![t_1 \text{ is the spy } s_r]\!]^{[1\to z, r\to s]}](s))$ (d.13)

$=$ $\text{comma}(\lambda z.\lambda s.[[\![\text{is}]\!]([\![\text{the spy}]\!]([\![s_r]\!]^{[1\to z, r\to s]}))([\![t_1]\!]^{[1\to z, r\to s]})](s))$ (FA)

$=$ $\text{comma}(\lambda z.\lambda s.[[\![\text{is}]\!]([\lambda s' : \exists!x x \text{ is a spy in } s'.\ \iota x x \text{ is a spy in } s']$

$([\![s_r]\!]^{[1\to z, r\to s]}))([\![t_1]\!]^{[1\to z, r\to s]})](s))$ (LT)

$=$ $\text{comma}(\lambda z.\lambda s.[[\![\text{is}]\!]([\lambda s' : \exists!x x \text{ is a spy in } s'.\ \iota x x \text{ is a spy in } s'](s))(z)](s))$ (PT)

$=$ $\text{comma}(\lambda z.\lambda s : \exists!x x \text{ is a spy in } s.[[\![\text{is}]\!](\iota x x \text{ is a spy in } s)(z)](s))$ (λC.II)

$=$ $\text{comma}(\lambda z.\lambda s : \exists!x x \text{ is a spy in } s.[[\![\text{is}]\!](\lambda y.\lambda s''.\ y = \iota x x \text{ is a spy in } s \text{ in } s'')(z)](s))$ (ident)

$=$ $\text{comma}(\lambda z.\lambda s : \exists!x x \text{ is a spy in } s.[\lambda f.\lambda u.\lambda s'''.f(u)(s''') = 1]$

$(\lambda y.\lambda s''.\ y = \iota x x \text{ is a spy in } s \text{ in } s'')(z)](s))$ (LT)

$=$ $\text{comma}(\lambda z.\lambda s : \exists!x x \text{ is a spy in } s.[\lambda u.\lambda s'''.\ u = \iota x x \text{ is a spy in } s \text{ in } s'''](z)](s))$ (λC.I)

$=$ $\text{comma}(\lambda z.\lambda s : \exists!x x \text{ is a spy in } s.[\lambda s'''.\ z = \iota x x \text{ is a spy in } s \text{ in } s'''](s))$ (λC.I)

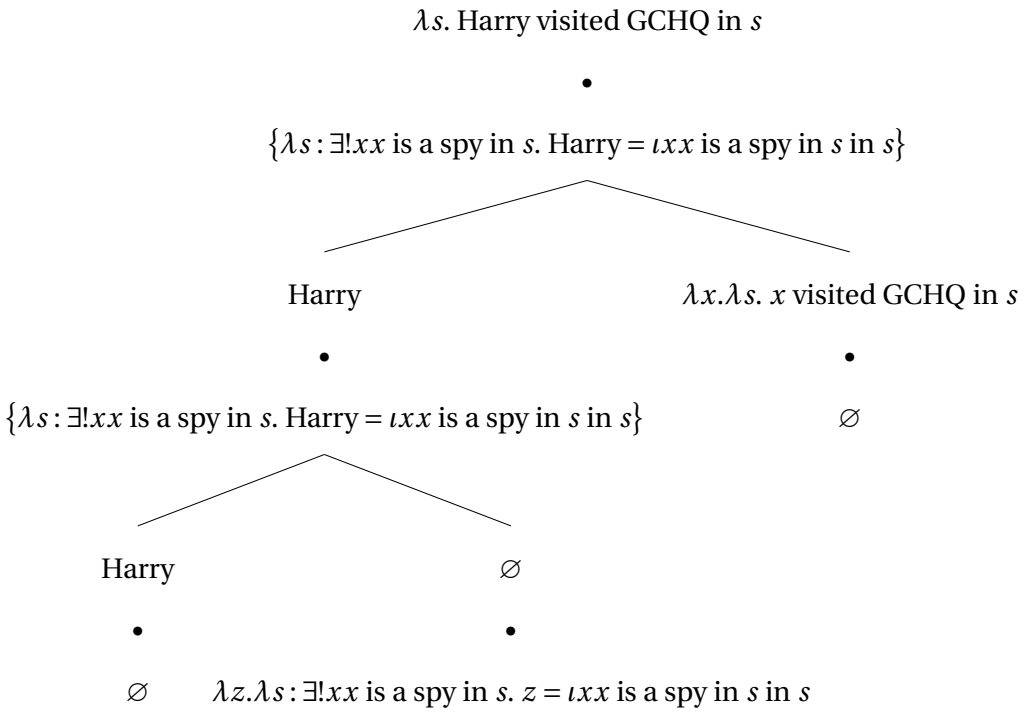
$=$ $\text{comma}(\lambda z.\lambda s : \exists!x x \text{ is a spy in } s.\ z = \iota x x \text{ is a spy in } s \text{ in } s)$ (λC.I)

$=$ $\lambda z.\lambda s : \exists!x x \text{ is a spy in } s.\ z = \iota x x \text{ is a spy in } s \text{ in } s$ (λC.I)

83 I choose a linear format for this derivation because we are focussing on only the not-at-issue meaning for a single node. Below, I return to the graphical derivation format for the entire sentence. Further, type-shifters are treated as "silent semantic operators" (Barker, 2020: 19), i.e., metalanguage functions available to be applied as composition rules. They are not unpronounced syntactic items that get interpreted. I have made the feature type-shifters (app and comma) available only via applications of the Feature Semantics rule, as noted in §4.3.3.

Further, by Feature Semantics, $[\![\text{CP}_{\text{comma}}]\!]^g = \varnothing$. Intuitively, this is correct: the only difference between a restrictive relative and its nonrestrictive counterpart is whether the clausal meaning is at-issue or not (cf. Portner, 2007: 414).

Now that we have derived both dimensions of meaning for this node, the depiction below graphically illustrates the rest of the derivation, with uses of Conventional Application and Functional Application (revised):[84]



Therefore:

(4.32) #Harry, who is the spy, visited GCHQ.

At-issue: λs. Harry visited GCHQ in s

Not-at-issue: $\{\lambda s : \exists!xx$ is a spy in s. Harry $= \iota xx$ is a spy in s in $s\}$

So, we have a compositional derivation of the at-issue and CI content of (4.32).

84 I suppress derivation of the VP too, since this was already shown in (4.15).

4.4 | Circumstances of Evaluation

The current situation semantic system uses topic situations to set the circumstance of evaluation for propositional content (cf. Kratzer 2005; Zweig 2006: 293). The meanings of declarative sentences are propositions of type $\langle s, t\rangle$ and assertions, in a sense, apply these propositions to topic situations to yield truth-values.

With this in mind, the analysis of DAs and NRRs provided above points to why (4.28) feels infelicitous where (4.27) does not. Suppose that whenever a sentence with a conventional implicature is uttered, the expressed CI proposition combines by default with the broadest topic situation available—the world of utterance—and *not* with the topic situation paired with the at-issue content. Then, the implicature of (4.28) will stake an identity claim like that outlined in (4.33). There is not exactly one spy in the entire world, so infelicity results due to presupposition failure. However, no topic situation can inhibit the presupposition of the appositive description in (4.27). Its presupposition has already been enforced against s^{**}, as shown in (4.34):

(4.33) $\{\langle w, \lambda s : \exists! x\, x \text{ is a spy in } s.\ \text{Harry is identical in } s \text{ to } \iota x\, x \text{ is a spy in } s\rangle\}$

(4.34) $\{\langle w, \lambda s.\ \text{Harry is identical in } s \text{ to } \iota x\, x \text{ is a spy in } s^{**}\rangle\}$

The contrast in felicity between definite appositions and definite NRRs (NRRs with postcopular descriptions) drops out from whether the supplemented description's restrictor pronoun is bound or referential.

In what follows, I argue that this stipulation—the default circumstance of evaluation for CI content is the broadest topic available—provides a neat account of various natural language data concerning the felicity patterns exhibited

by definite NRRs.[85] I use definite NRRs because on the analysis provided, their propositional denotations will inherit the presuppositions of their embedded descriptions, like (4.33), making them partial functions of type $\langle s, t\rangle$. The domain conditions on partial functions can then be used as a litmus test to determine how broad of a topic situation CI content is, in general, automatically evaluated against.

4.4.1 | Narrative

The CI generated by a definite NRR is infelicitous even when its embedding sentence is uttered in a context that satisfies the presupposition of the postcopular description:

(4.35) [We are attending a state dinner, and Roger Wicker walks in. He is the only representative of his state and party who is present. I utter]:

#Roger Wicker, who is the Mississippi Republican senator, is over there.

At-issue: λs. Roger Wicker is over there in s

Not-at-issue: $\{\lambda s : \exists! x x$ is an MR-S in s. Roger Wicker is identical in s to $\iota x x$ is an MR-S in $s\}$

This indicates that the presupposition—and therefore the CI-denotation itself—is evaluated by default against the world of utterance, and not a topic situation

85 One reason for why this may be so is that CI content is provided by asides that would disrupt the main point under discussion if not interpolated (cf. Potts, 2012: 2528). Owing to this separation, they are perhaps processed by default against a distinct topic situation. I leave this issue as a question for further research.

consisting of the state dinner.[86] The world contains two Mississippi Republican senators, so the CI is infelicitous because the actual world fails to satisfy the relevant domain condition.

However, this effect is only by default. Overt narrative signalling is able to suitably restrict the topic of evaluation for conventional implicatures:

(4.36) Let me tell you a story about two senators. One is a Mississippi Republican. The other, a Massachusetts Democrat. Roger Wicker, who is the Mississippi Republican, has been campaigning for....

Presumably, in cases like this the broadest topic situation is naturally filled in as the world of the narrative. The implicature seems to mean something like: *Roger Wicker is the Mississippi Republican who features in this narrative.*

4.4.2 | Role-Type and Particularised

The felicity of implicatures generated by definite NRRs tracks with the licensing patterns of presuppositions triggered by what Rothschild (2007) calls *role-type* descriptions. These are descriptions whose uniqueness presuppositions are typically common ground, i.e., it is normally common knowledge that the description has a unique potentially varying satisfier across many possible situations (Rothschild, 2007: 75). For present purposes, I focus on another feature of *role-types*: usually, their uniqueness presuppositions enjoy satisfaction even when evaluated against

86 Technically, this only shows that the default topic situation is broad enough to contain both serving Mississippi Republican senators. However, the world of utterance provides the most natural, non-gerrymandered choice.

entire worlds, because their descriptive content is typically provided by a head noun that is either functional or modified by a superlative.[87]

To illustrate, the (a)-sentences below are improved considerably by superlative modification. This indicates that these CIs are automatically evaluated against the world of utterance. By definition, there can only be exactly one *-est F*. So, superlatives enrich the descriptive content enough to allow the inherited presupposition (in the partial function) to be satisfied when it combines with the world of utterance in an Austinian proposition:[88]

(4.37) a. #Harry, who is the spy, entered a café.

b. Harry, who is the greatest spy, entered a café.

(4.38) a. #Roger Wicker, who is the Mississippi Republican senator, is over there.

b. Roger Wicker, who is the tallest Mississippi Republican senator, is over there.

There is further evidence that definite NRRs are not infelicitous when the presuppositions inherited from their embedded descriptions are plausibly satisfied throughout the world of utterance. The following sentences have role-type descriptions whose head noun is *relational* (and functional), and it is common knowledge that each company has a unique CEO, each city a unique mayor, etc. (cf. Rothschild, 2007: 75):[89]

87 I investigate the nature of functional head nouns in Chapter 5.

88 This is an issue about the truth-value/undefinedness of *assertions*, wherein propositions are paired with topic situations to produce a truth-value. If there is a presupposition crash when a proposition is paired with a topic situation (whether the world of utterance, or some smaller situation), no truth-value results for the assertion, and this undefinedness leads to infelicity.

89 The internal argument to each relational noun is not explicitly stated here.

(4.39) a. Sheila, who is the CEO, will introduce you to the team.

b. Maria, who is the mayor, organises every council meeting.

c. Biden, who is the president, is dismissive of the 'special relationship'.

d. London, which is the capital, has always been an economic hub.

Any non-role-type descriptions are *particularised*, and these descriptions are typically marked in definite NRRs. A plausible reason for this is that the head noun of a particularised description tends to have many individuals in its extension (Rothschild, 2007: 76). So, when inherited by the propositional denotation of a CI, these presuppositions will not be satisfied when enforced against a topic situation as broad as the world of utterance. So, infelicity results:

(4.40) a. #Armstrong, who is the cyclist, is training with his cycling buddies. (Potts, 2005: 119)

b. #Barteld, who is the man in this room, is a linguist.

c. #Robin—who is the professor—cares about his students.

d. #Kumble, who is the cricketer, once took 10 for 74 against Pakistan.

Narrowing down the nominal content via intersective modification renders the examples fine—albeit a little comical—because the resulting head nouns have singleton extensions in the world of utterance:

(4.41) a. Armstrong, who is the cyclist infamous for doping during the 2005 *Tour*, is training with his cycling buddies.

b. Barteld, who is the man in the corner of this room clutching a copy of *Syntactic Structures*, is a linguist.

c. Robin—who is the professor on that chair scribbling across a copy of *The Times* with furious intent—cares about his students.

d. Kumble, who is the cricketer best known for being the third-highest wicket taker in Tests, once took 10 for 74 against Pakistan.[90]

Broadly speaking, these data indicate that the (in)felicity patterns of definite NRRs will track whether the embedded postcopular definite description is role-type or particularised. The reason for this seems parasitic on whether the head noun of a definite description is (with respect to the world of utterance) a singleton or not. These data are neatly predicted by the analysis of appositions and (definite) NRRs that I have presented, on the stipulation that definite NRRs force the presuppositions of their postcopular descriptions to be evaluated—by default—against the world of utterance. In turn, this attests to a separation between the default circumstance of evaluation for at-issue and CI propositional content.

4.4.3 | Summing up

There is a contrast in felicity between definite appositions and NRRs, as illustrated by our starting data in §4.1. I have argued that this contrast comes down to an independent distinction between referential and predicative definite descriptions. Appositive descriptions enforce their uniqueness test against their anchor, resulting in preclusion, and serve up referential expressions of type e. Consequently, the not-at-issue proposition expressed by a definite apposition uses a referential description to specify and identify the anchor under a descriptive guise. Postcopular descriptions have their restrictor pronouns bound, and shift to type $\langle e, st\rangle$ before

90 Perhaps soon to be fourth-highest, given the current standings.

percolating into the CI dimension. Consequently, the not-at-issue proposition expressed by a (definite) NRR does not use a specifying description (an item of type e) to identify an individual. In fact, the description's presupposition passes up to the CI denotation. This combines with a default topic situation—the world of utterance—and so claims that the antecedent of the NRR is the only individual in the extension of the head noun of the postcopular description. This is why there is no sense of preclusion.

This also adduces support for a situation-semantic decomposition of singular definites. A litany of puzzling data concerning the behaviour of descriptions in main and supplementary clauses can be subsumed under a theoretically satisfying independent distinction, viz., the referential/predicative contrast, stage-managed by the object-language manipulation of syntactic situation pronouns.

In turn, this tells against so-called 'narrow universe of discourse' strategies. For instance, it might be suggested that in an apposition, after an anchor, say 'John', is introduced, the domain of discourse is contextually restricted to all salient individuals named 'John'. Then, the uniqueness implication of the appositive description is tested as usual, but against this narrow domain, and picks out the salient John with the property in question. Problematically, however, this strategy does not provide an independently motivated explanation of the data. It would have to make the arbitrary postulation that domains of discourse can be restricted when definite descriptions are appositives, but not when definite descriptions occupy other kinds of supplements, like NRRs. This does not explain *why* we observe the felicity patterns indicated in §4.1, and is unsatisfactory.

I take these considerations to provide a point in favour of my analysis.

4.5 | Discussion

4.5.1 | 'Only'

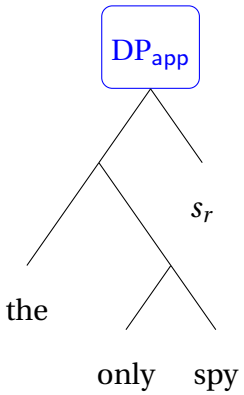
Elbourne (2001a: 269) observes that while garden-variety appositives are felicitous, variants explicitly spelling out uniqueness with 'only' are marked:

(4.42) a. Harry, the {#only} spy, entered a café.

b. Williamson, the {#only} Tory MP, is making headlines again.

c. Jane Seymour, the {#only} wife of Henry VIII, was neither divorced nor beheaded.

In light of this, appositive descriptions with head nouns modified by 'only' will be treated as quantifying over alternative situations. The effect is to *uproot* the anchored situation assigned to the restrictor pronoun, because the uniqueness presupposition of the definite article will test against situations beyond the constraint imposed by the restrictor. I use the following entry for 'only', adapted from Coppock & Beaver (2015: 398):[91]



(4.43) $[\![\text{only}]\!] = \lambda F.\lambda x.\lambda s.\ F(x)(s) = 1 \wedge \forall y \forall s'[y \neq x \rightarrow \neg F(y)(s') = 1]$

Assuming the LF indicated, $[\![\text{the only spy}]\!]^g$ will have the meaning given in (4.44) before it combines with a bound or referential restrictor pronoun. The encoded presupposition is stricter than usual: it requires both (i) that there is exactly one

91 See Rooth (1985) and von Fintel (1997) for further discussion.

x who is a spy in s, and (ii) that for every individual y not identical to x, there is no situation s' in which y is a spy. Even if the restrictor pronoun is mapped to the smallest situation s^{**} consisting only of Harry's thick particular, this presupposition will not be met. There are situations s' other than s^{**} that contain spies non-identical to Harry. So, computation crashes and infelicity results if we attempt to feed s^{**} into the denotation below:

(4.44) $$\lambda s : \exists! x\big[\text{spy}(x)(s) = 1 \wedge \forall y \forall s'[y \neq x \rightarrow \neg\text{spy}(y)(s') = 1]\big].$$
$$\iota x\, \text{spy}(x)(s) = 1 \wedge \forall y \forall s'[y \neq x \rightarrow \neg\text{spy}(y)(s') = 1]$$

This is the desired result. The entry also predicts the felicity of 'only' as a modifier of nouns whose uniqueness is guaranteed throughout the world of utterance:

(4.45) a. Sheila, the only person in this room with a PhD in functional analysis, was supervised by a Fields Medalist.

b. Legatt, the only Supreme Court Justice with a philosophy degree, was on the news this morning.

c. ?Quincey, the only CEO of *Coca-Cola*, is over there.

d. ?Biden, the only president of the USA, was on the news this morning.

Of course, 'only' may nevertheless feel slightly awkward in cases where it is common knowledge that the head noun has a singleton extension across the world of utterance, as (4.45c) and (4.45d) indicate.

4.5.2 | Backgrounded?

A pre-theoretical divide between presuppositions and CIs is that the former must be backgrounded, viz., some material can be felicitously presupposed only if that material is common ground. CIs typically offer discourse-new information, so they are usually infelicitous if their content is already common ground. The following pair illustrates:

(4.46) Lance Armstrong survived cancer. (Potts, 2005: 112)

a. #When reporters interview Lance, a cancer survivor, he often talks about his illness.

b. And most riders know that Lance Armstrong is a cancer survivor.

In this respect, CIs are akin to at-issue content. If their content is already common ground, then it will typically be infelicitous due to redundancy. The CI in (4.46a), for example, is the proposition that *Lance is a cancer survivor*. The initial sentence backgrounds this content, so the update imposed on the common ground by the CI will yield no change, hence it is redundant and infelicitous.[92]

92 Situation semantics is not immediately compatible with the finer aspects of the common ground model from §2.4. The first point to note is a minor tweak. Suppose a sentence has a semantic presupposition. Then, there are two possibilities. The presupposition will have to be satisfied by either (i) a situation assigned to a restrictor pronoun, or (ii) the topic situation supplied on an occasion of utterance (cf. §4.4). So, the backgrounding requirement on the common ground is that it must include the proposition that the presupposition is satisfied by either (i) an assigned value to the restrictor; (ii) the supplied topic situation, depending on how the composition played out (Elbourne, 2013: 53). Second, situation-semantics assumes that asserted propositions combine with a topic situation to yield a truth-value. Truth-values cannot be added to the common ground. So, it seems that the situation-semanticist must accept that asserted propositions also added to the common ground, as well as combining with a topic to yield a truth-value for a sentence-utterance. I lack the space to re-develop a full common ground framework here, so I will allow myself this assumption to enable the brief comments made above.

However, the antibackgrounding constraint on CI content is not sacrosanct. Potts (2015: 190) observes that there are special cases where CI content is old, in which case the implicature "takes on the status of evoked content (known information that the speaker brings to salience)". While he offers no example, it seems that definite appositions must always assume the status of evoked content. Consider the implicature of the sentence below:

(4.47) $\{\!\{\text{Harry, the spy, visited GCHQ}\}\!\}^{[r \to s^{**}]} =$

$\{\lambda s.\ \text{Harry is identical in } s \text{ to } \iota x\, x \text{ is a spy in } s^{**}\}$

As illustrated in §4.3.3, s^{**} must be a member of $\{s \mid \exists!x\, x \text{ is a spy in } s\}$ for CI composition to proceed. So, backgrounding requires that it must be common ground that there is exactly one spy in s^{**}. By hypothesis, s^{**} is Harry's thick particular, so it must be common ground that Harry is (actually) a spy. If so, the CI proposition in (4.47) will not update the context set, although it is not infelicitous.

This indicates that definite appositions are typically exempt from the antibackgrounding constraint. By definition, the presupposition of an appositive description will always render the propositional content of the apposition—of which it forms a constituent—as discourse-old. To appreciate why this does not result in a feeling of infelicity, it is instructive to consider the pragmatic role of appositive descriptions. They "help the listener fix the referents of the proper names they adjoin to" (Potts, 2012: 2529). Definite appositions accomplish this precisely because they take some backgrounded content and make it salient. In processing this evoked content, discourse participants are able to psychologically fix which

individual is under discussion, because the appositive description provides a new guise for that individual.[93]

4.5.3 | Rigidity

I have argued that presupposition preclusion results from appositive descriptions only testing for uniqueness against their anchor. This is achieved by assigning a value to restrictor pronouns before appositive descriptions are lifted by app, so that the pronoun does not end up as a λ-bound variable. Consequently, appositive descriptions are *rigidified*—in the sense discussed by Stanley (2017)—and definite appositions express necessary identity statements. For example, (4.48) has a constant intension. For any situation, it will be true in that situation that Harry is identical to the unique x that is a spy in s^{**}, because s^{**} is part of the actual world containing only Harry. So, this proposition will yield 1 when paired with any topic situation. In this respect, it is intensionally equivalent to (4.49):

(4.48) λs. Harry is identical in s to $\iota x\, x$ is a spy in s^{**}

(4.49) λs. Harry is identical in s to Harry

This seems correct. Appositive descriptions pick out the referent of their anchor based on an *actual* property instantiated by that individual, relative to an actual

93 These remarks perhaps indicate a problem with the lack of granularity in treating propositions as sets of worlds/situations. Although the content of the apposition doesn't remove any more worlds from the context set, it still tells the listeners something new by providing a new guise for the referent of the anchoring DP, which is certainly not redundant. In any case, native speakers do not judge appositives like (4.47) to sound redundant, which is what matters. Further, if I were to hazard a guess, (4.46a) feels infelicitous because the proposition that Lance survived cancer has *just* been asserted, so it is exceedingly obvious to all discourse participants. Now consider a scenario where this content is common ground, but was established an hour ago. Then, 'Lance, a cancer survivor, …' feels felicitous, because it is evoking some backgrounded material that may have slipped from the discourse participants' minds.

situation consisting of only that individual. Consequently, DAs wind up as identity statements involving two rigid terms of type e.

The first piece of evidence in favour of this analysis is that appositive descriptions corefer with their anchor even when it is salient that another individual satisfies the relevant descriptive content:

> STATE DINNER: Roger Wicker attended a state dinner on Tuesday evening. His colleague, Cindy Hyde-Smith, also attended. A reporter present at the dinner utters to their colleague the following day:

(4.50) Wicker, the Mississippi Republican senator, attended a state dinner.

The appositive in (4.50) refers to Wicker despite the presence of Hyde-Smith. This indicates that the restrictor pronoun, and so the definite description, must be treated referentially. Otherwise, the pronoun would be bound, which would produce the CI in (4.51). However, this denotation is not an available reading for the conventional implicature in (4.50). The proposition in (4.51) crashes when combined with the actual world as topic situation, yet the CI in (4.50) is felicitous:

(4.51) $\{\lambda s : \exists!x x$ is a Mississippi Republican in s. Roger Wicker is identical in s to $\iota x x$ is a Mississippi Republican in $s\}$

Further, my analysis predicts that definite NRRs yield contingent identity statements. This is desirable, because at-issue identity statements with precopular proper names and postcopular descriptions are also contingent.[94] This is why

94 Unless the description is explicitly modified by 'actual'. More on this in a moment.

the analysis of relative clauses in §4.3.4 assumed that postcopular definite descriptions must have their situation pronouns bound. As Elbourne (2013: 116) points out, binding is required to explain the contrast between necessary identity statements like (4.52), and contingent identity statements like (4.53):

(4.52) a. Carroll is Carroll.

b. λs. Carroll is identical in s to Carroll

(4.53) a. Carroll is the author of *Through the Looking Glass*.

b. $\lambda s : \exists! x\, x$ is an author of *Through the Looking Glass* in s. Carroll is identical in s to $\iota x\, x$ is the author of *Through the Looking Glass* in s

The function in (4.53b) may deliver 0 when evaluated against a world v where there was exactly one author who penned Alice's adventures, but it was not Carroll. This reading is made accessible only when the postcopular description has its situation argument bound, which is required to make the description non-rigid: a potentially varying individual will be output when various possible topic situations are fed in.

This analysis—along with the analysis of NRRs in §4.3.4—relies on the assumption that restrictor pronouns accompanying postcopular descriptions are *obligatory* bound.[95] I offer some supporting evidence. First, if binding were optional then (4.54a) would have some true reading, but it does not (cf. Kripke, 1980):

95 My supervisor points out that there may—in theory—be rigid readings for constructions like (4.53a). However, I find such readings almost impossible to access, and they are not attested by the data. Precisely, then, my claim is that binding is obligatory to deliver non-rigid readings of constructions like (4.53a), i.e., to deliver the only readings we seem to be able to access. I leave it as a question for future research as to whether such rigid readings are available.

(4.54) a. Necessarily, Carroll is the author of *Through the Looking Glass*.

b. Necessarily, Carroll is the actual author of *Through the Looking Glass*.

While (4.54b) has a true reading, this occurs despite the restrictor pronoun being bound. To draw apart the the contribution of 'actual' modifying the head noun from any overlapping effects due to restrictor-binding, consider a predicative statement using an actualised but non-role-type description:

(4.55) #Carroll was the actual fellow of Christ Church.

The postcopular description is rigidified, but suffers presupposition failure. If its restrictor were not obligatorily bound, the pronoun would be able to receive a referential treatment, which would predict (4.55) to have an available true reading that exhibited presupposition preclusion. However, descriptive NRRs lack precluded readings. So, the restrictor pronouns of *postcopular descriptions* generally must be bound and unavailable for pragmatic assignment. The point is emphasised by the following:

(4.56) a. #David Cameron, who is the Tory politician,....

b. David Cameron, the Tory politician,....

c. David Cameron has been under fire lately. The Tory politician has....

Sentences (4.56b) and (4.56c) are fine, indicating that a referential value can be assigned to their restrictor pronouns, an assignment pragmatically determined by the antecedent proper name. No such reading is available for (4.56a), indicating again that the pronoun must be bound.

Relatedly, the difference between (4.56b) and (4.56c) is that the appositive description in (4.56b) is syntactically adjoined to its anchor, and coreference

cannot be disrupted. However, coreference can be disrupted in (4.56c). In the second sentence of the following pair, there is no suitable assignment for the restrictor pronoun between the choices of Sunak and Cameron:

(4.57) a. Rishi Sunak has been keeping a cool distance from his old boss. David Cameron, the Tory politician, has been under fire in the press.

b. #Rishi Sunak has been keeping a cool distance from his old boss, David Cameron. The Tory politician has been under fire in the press.

In sum, appositive descriptions are singular terms of type e, making them rigid, and the appositive construction ensures preclusivity via referential variable assignments. Postcopular descriptions are predicative items of type $\langle e, st\rangle$: they may be rigidified (=actualised), but they cannot exhibit preclusivity, as attested by (4.55) and (4.56). Therefore, postcopular descriptions must have bound restrictor pronouns.

4.5.4 | Minimality

I make a brief excursion into some situation-theoretic technicalities in the analysis I have provided. To illustrate, consider (4.58):

(4.58) Roger Wicker, the Republican senator, attended a state dinner.

The NP is elliptical for the property *Republican senator for Mississippi*. Where s^* is the smallest situation consisting only of the referent of 'Roger Wicker', (4.59) details a toy denotation for the appositive description (before it is lifted by app):

(4.59) $\iota x\, x$ is a Republican senator for Mississippi in s^*

Strictly speaking, however, s^* cannot consist only of Wicker's thick particular. For Wicker to be the referent of this description, in virtue of being the unique x who is a Republican senator for Mississippi in s^*, s^* must contain Wicker, Mississippi, and a relation *state senator for* holding between the two. In what sense can Mississippi be a member of such a small situation? Here, I follow Berman (1987) and those after him, who accept a degree of abstraction when it comes to introducing entities within minimal situations for their analysis of donkey anaphora. Take Heim's (1990: 144) D-type analysis of (4.60a), given in (4.60b):

(4.60) a. If a man is in Athens, he is not in Rhodes.

b. In every minimal situation s such that there is a man in Athens in s, the unique man in Athens in s is not in Rhodes in s.

(4.60b) defines a minimal situation consisting of only a man, Athens, and a locative relation *being in* holding between the two. If there may be minimal situations containing entities like cities in some suitably abstract sense, small situations of the sort required for (4.59) are acceptable too.[96]

Now, we must elaborate on how to define anchored 'smallest situations' when appositive descriptions introduce relational properties. In the case of an appositive description with a nonrelational head noun, it is sufficient for the anchor to pragmatically determine an assignment whose value is the thick particular of its referent. By hypothesis, such a situation will contain the individual and all of their non-relational properties.

96 A similar story is required for cases not involving appositives, so these remarks are not unique to my proposal. For example, consider an utterance of 'the president is hungry' during one of Biden's visits to Downing Street. If the situation pronoun associated with the description is referential, assignment will have to be to some minimal situation consisting only of Biden standing in the relation *president of* to the USA, in some abstract sense.

So, relational properties are not instantiated in situations consisting of thick particulars. Therefore, when an appositive description has a relational head noun, assignment must be to the smallest situation containing the thin particular of the anchor, the relation in question, the other relatum, and these entities standing in said relation to one another.[97] It can be demonstrated that for any relation R that in fact holds between some x and y, there will be a non-arbitrary, *smallest* situation consisting only of those relata standing in R each other. To start, I take Heim's (1990: 146) definition of *minimality* relative to any set of situations S:

(4.61) $$\mathbf{min}S = \{s \in S \mid \neg\exists s' \in S\,[s' \leq s \wedge s' \neq s]\}$$

In other words, for any S, **min** extracts the minimal elements as defined under the parthood ($\leq$) ordering. Suppose we want to define a minimal set containing Republican senators for Mississippi. Then, we get the set in (4.62):

(4.62) $$\mathbf{min}\{s \mid \exists!x\, x \text{ is a Republican senator for Mississippi in } s\}$$

At the time of writing, (4.62) defines a set containing exactly 2 minimal situations: one for each current Republican senator for Mississippi, consisting only of that individual, Mississippi, and the relation *state senator for* holding between the two.[98] This removes any ontological superfluity. Consider a situation containing Wicker, Mississippi, the relation *state senator for* holding between the two, and Buckingham Palace. This situation is not a member of the set defined in (4.62).

97 If the referent of the anchor does not in fact stand in the relevant relation, there will be no such actual situation and composition will crash, as desired.

98 The situations at play are all current and actual.

So, we can saturate any relational predicate into a one-place one, then use **min** to establish that there will be a unique smallest situation for each entity that is actually in the extension of the relevant one-place predicate. Therefore, variable assignments will be able to find some non-arbitrary value for the restrictor pronouns of appositive descriptions with relational head nouns, just as a unique, non-arbitrary value is available for appositive descriptions with non-relational head nouns (in this latter case, assignment is to the thick particular of the anchor).

4.5.5 | Binding

In the present system, binding calls for LF c-command (cf. §1.1.2). Pronouns display covarying readings with quantified DPs when those DPs scope over predicate-abstracts that covalue argument slots for the DP's trace and the pronoun:

(4.63) $\left[\text{Every spy}\right]_i$ loves her$_i$ country.

≈ Every spy $\left[\lambda x.\, x \text{ loves } x\text{'s country.}\right]$

Quantifiers are unable to semantically bind pronouns in supplements, despite surface scope indicating c-command (examples from Potts 2005: 80):

(4.64) a. *$\left[\text{No reporter}\right]_i$ believes that Ames is a spy, which he$_i$ wrote in his column.

b. *$\left[\text{No reporter}\right]_i$ believes that Ames, often the subject of his$_i$ columns, is a spy.

In the system that I have adapted from Portner (2007), there is no rule that allows an at-issue functor to take a CI meaning (something in the domain of $\{\!\{.\}\!\}^g$) as argument. So, even if pronouns and traces are (syntactically) c-commanded by

at-issue binders, variables appearing in the CI dimension in the metalanguage cannot be semantically bound by binders in the at-issue dimension.

Now, definite descriptions can exhibit covarying readings with quantifiers, a point typically taken in favour of positing a covert variable somewhere in the [the NP] structure, whether attached to the determiner (cf. von Fintel 1994; Elbourne 2008) or to the nominal (cf. Stanley 2000, 2002a).[99] Each (a)-sentence below has (one of) its readings indicated in (b):

(4.65) a. Mary talked to no senator before the senator was lobbied.

b. There is no individual x such that x is a senator and Mary talked to x before the senator identical to x was lobbied.
(Elbourne, 2001b: 171)

(4.66) a. Natasha congratulated every MP after the MP was re-elected.

b. For every individual x such that x is an MP, Natasha congratulated x after the MP identical to x was re-elected.

However, the following facts demonstrate that appositive descriptions cannot covary with external quantifiers. This indicates that covert situation pronouns within supplements, like type e pronouns within supplements, cannot be bound by at-issue constituents, as our theory predicts.

[1] Quantified Anchors. Quantified DPs cannot serve as appropriate anchors of appositive descriptions:

(4.67) *Mary talked to no senator before every one, the senator, was lobbied.

(4.68) *Natasha congratulated every MP after some, the MP, were re-elected.

99 I briefly raise an objection to the nominal strategy in §5.2.3.

The sentences in (4.67) and (4.68) are ungrammatical, and clearly lack the readings in (4.65b) and (4.66b), respectively.[100] This is explained by the fact that non-referring expressions like quantifiers and bound variables cannot anchor non-restrictive modifiers and cannot be specified by expressions of type *e* (Thorne, 1972: 553). Modifying some further examples due to Potts (2005: 122):

(4.69) *No climber, {an/the} experienced adventurer, reached the summit.

(4.70) *Every climber, {an/the} experienced adventurer, reached the summit.

(4.71) Chris, {an/the} experienced adventurer, reached the summit.

For example, (4.69) cannot mean that for no x who was a climber, x was an experienced adventurer. So, the only way to construct felicitous variants of (4.65a) and (4.66a) using appositive descriptions is for a proper name to serve as anchor. However, the following sentences lack readings where the appositive covaries with the matrix quantifier:

(4.72) ?Mary talked to no senator before Jeb, the senator, was lobbied.

(4.73) ?Natasha congratulated every MP after Liz, the MP, was re-elected.

[2] Intensional Operators. The sentence in (4.74) exhibits a well-known ambiguity between *de re* and *de dicto* readings:

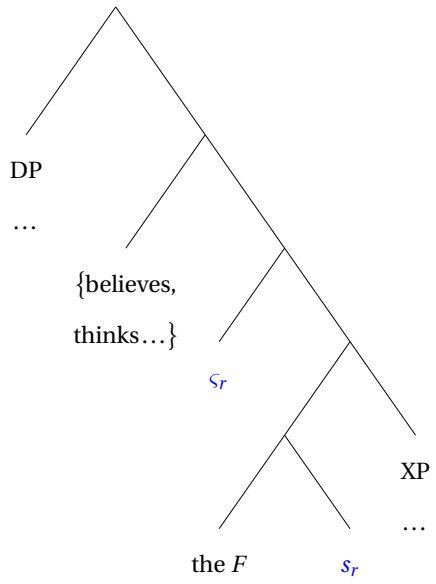
(4.74) Ralph believes that the man next door is a spy. (cf. Quine, 1956)

a. There is a unique individual who *in fact* lives next door to Ralph, and Ralph believes of this individual that they are a spy (*De re*)

100 The best (at-issue) reading I can find for (4.68) is roughly: for every individual x such that x is an MP, after some y were re-elected Natasha congratulated x. In other words, after some (unspecified) MPs were re-elected, Natasha congratulated all MPs. To my ear, what is unavailable for (4.68) is the reading available for (4.66a), given in (4.66b).

b. Ralph believes that there is a unique individual who lives next door to him and that this individual is a spy (*De dicto*)

In the current system, this ambiguity is explained with situation binding. The availability of *de dicto* readings for attitude reports whose complements embed definite descriptions relies on the restrictor pronouns of these descriptions being locally bound by situation binders sitting immediately below attitude verbs.[101]



If the LF of (4.74) is configured in this way, the definite description is interpreted as 'the man next door in w', where w ranges over Ralph's belief-worlds. The descriptive content thus enters into Ralph's belief, limiting doxastic accessibility to those worlds where there is exactly one man next door. The description picks out a unique (potentially varying) satisfier in each such belief-world. A *de re* reading is achieved when the restrictor pronoun is either free, or bound by a situation binder sitting *above* the attitude verb at LF.[102]

With this in mind, observe that (4.75a) possesses only a *de re* reading. This is to be expected. The proper name 'Ortcutt' is at-issue in the report, and while singular terms of type e can undergo quantifier raising out of CPs in attitude reports, this

101 See Percus 2000, Keshet & Schwarz 2019, and Grano 2019 for discussion.

102 I refer to Schwarz (2012), Elbourne (2013), and Lederman (2021) for further technical discussion. I ignore complications about 'double-vision' cases, and of contexts where we can derive so-called 'third readings' (Fodor, 1970) for attitude reports. I am merely using attitude verbs to demonstrate the unavailability of binding into supplements.

makes no truth-conditional difference to such reports (cf. Yalcin, 2015a: 212). Further, the unavailability of any *de dicto* reading despite the presence of the appositive description '… , the man next door, …' indicates the impossibility of binding into the supplement. Precisely, there is no reading of (4.75a) wherein an 'at-issue' situation binder sitting below the attitude verb binds the restrictor pronoun accompanying the appositive description:

(4.75) a. Ralph believes that Ortcutt, the man next door, is a spy.

b. Ralph believes that the man next door, Ortcutt, is a spy.

What of sentence (4.75b)? This is not semantically equivalent to (4.75a), because the definite description is semantically 'at-issue' and not an appositive: it is an anchor. However, (4.75b) also seems to lack a *de dicto* reading. One way of thinking why this is so is that the apposition signals that the speaker is using the definite description *referentially*. If the description in (4.75b) had its restrictor locally bound at LF, its denotation would vary across Ralph's belief-worlds. In such a case, it would not be an expression of type *e* capable of coreference with the appositive that it anchors (here, the proper name 'Ortcutt'). So, if one is to understand the apposition as involving genuine coreference, the anchor must be treated as a referential singular term, in which case a *de dicto* reading is off the cards.[103]

This observation carries over to other intensional operators, like modals:

(4.76) a. It is possible that the man next door is a spy.

b. It is possible that Ortcutt, the man next door, is a spy.

103 Technically, there's nothing to stop a binder appearing below the relevant attitude verb. However, we saw in §4.5.5 that non-referring expressions cannot anchor appositives, so there is pressure to process the anchor as referential, which then forces a *de re* reading.

c. It is possible that the man next door, Ortcutt, is a spy.

While (4.76a) exhibits a *de re/de dicto* ambiguity, (4.76b) can only be read *de re*, and the prominent reading of (4.76c) is *de re*, if one is to consistently interpret the apposition as involving two coreferential terms.

In sum, these data point to a general prohibition on using at-issue binders to manipulate the restrictor pronouns that accompany appositive descriptions. This provides good reason to think that situation pronouns within appositive descriptions are obligatorily free, and receive contextually determined values from the assignment function to ensure coreference with their anchors.

4.A | Appendix

Feature Semantics states that the CI meaning of a marked node is the result of feeding the *regular* at-issue meaning of this node into the indicated type-shifter, where regular meaning is simply a function of the at-issue value(s) of the daughter(s) of the marked node. The rule is presented in §4.3.3 to remain neutral about the branching structure of the marked LF node being interpreted. I elaborate here:

- If α is a binary branching node, such that $[\![\alpha]\!]^g = [\![\beta]\!]^g([\![\gamma]\!]^g)$, then:

  $\{\!\{\alpha_\eta\}\!\}^g = \eta([\![\beta]\!]^g([\![\gamma]\!]^g))$

- If α is a unary node, such that $[\![\alpha]\!]^g = [\![\beta]\!]^g$, then:

  $\{\!\{\alpha_\eta\}\!\}^g = \eta([\![\beta]\!]^g)$

Both derivations in this chapter involved structures where the marked node, either 'DP_{app}' or 'CP_{comma}', was binary branching. A unary branching node would be interpreted in the case of an apposed proper name.

5 Presupposition and Possession

Abstract This chapter extends the empirical coverage of the analysis in Chapter 4. I introduce some novel data concerning a pattern of presupposition satisfaction exhibited by possessive DPs, otherwise known as *genitival* definite descriptions. I argue that the absence of precluded readings for these constructions is compatible with the analysis of presupposition preclusion given in Chapter 4.

5.1 | Introduction

Definiteness effects in English are not limited to occurrences of 'the' in combination with some NP (and restrictor pronoun). So-called *prenominal possessives* or *genitival descriptions* also seem to presuppose that they have exactly one satisfier.[104] However, these constructions typically do not exhibit presupposition preclusion when they occur as an appositive. The proposition conventionally implicated by any of the following sentences can only mean that there is exactly one entity picked out by the appositive DP *simpliciter*, and that that entity is identical with the referent of the anchor:

104 I will focus discussion on prenominal possessives, because only they seem to lack precluded readings in appositive constructions. I lack the space to properly deal with true genitives ('the Republican senator for Mississippi') and double genitives ('the stick of Dylan's'). In particular, the latter kind of example raises many further issues, such as whether it is in fact a kind of partitive construction (cf. Barker, 1998).

(5.1) a. #Wicker, Mississippi's Republican senator, attended a state dinner.

b. #Jane Seymour, Henry VIII's wife, avoided beheading.

For example, the appositive in (5.1a) is felt to infelicitously presuppose that there is only one currently serving Republican senator for Mississippi, contrary to fact.

In §5.2 I sketch a syntax for possessive DPs, and consider some problems for our situation semantic analysis of definite descriptions. §5.3 presents some new data relating to felicity patterns of presuppositions, and then develops a solution using Barker's (1995; 2005) analysis of possessive DPs.

5.2 | The Possessive Construction

5.2.1 | Syntax

This subsection outlines a basic working syntax for prenominal possessives. In English, it is well-attested that the possessive marker '-s' always attaches to the "right periphery of the possessor DP" (Anderson, 2008: 2):

(5.2) a. [Mary]'s cat is sleeping.

b. [Barteld]'s favourite drink is a *Mojito*.

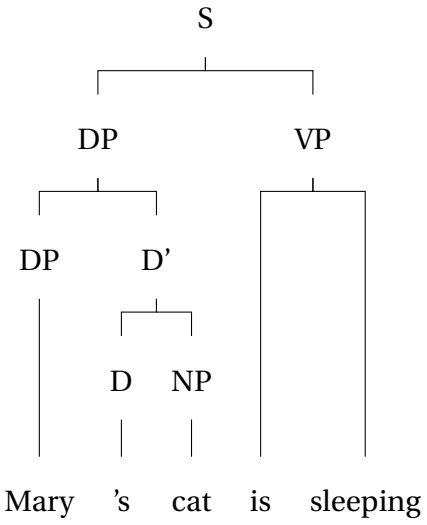
c. [Alice and John]'s flat is tastefully decorated.

d. [That man over there]'s coat is made from fine Italian wool.

One explanation for this is that the possessive marker is a clitic morpheme, one that occupies the position of the determiner in a possessive construction. Accordingly, the possessor (in the LF below, *Mary*) acts as specifier of the entire

possessive DP (cf. Abney, 1987: 79). This is unlike a typical definite description, wherein the singular definite article is head of the DP:[105]

(5.2) a. Mary's cat is sleeping ≈



Hence, the possessive marker always cliticises the right-edge of a possessor DP.[106]

Why should we expect '-s' to occupy the position of a determiner? One might think that it should occupy Spec(DP), given the possibility of constructions like (5.3a). However, this datum is not troubling. It is possible that a NP following the possessive marker has undergone phonological deletion at LF, as in (5.3b):[107]

(5.3) a. That cat is Mary's.

b. That cat is Mary[~~'s cat~~].

This instance of NP-deletion is licensed because there is a suitable linguistic antecedent, viz., the NP *cat* accompanying the demonstrative.

105 I give squared trees to assist readability across from possessors to clitic morphemes.

106 It should be noted that this analysis is not the only one on the market. For example, Anderson (2008) claims that possession is morphosyntactically marked on the possessor DP, and D is phonologically empty. To keep things simple, I adopt a common and fairly uncontroversial syntax. This will be enough to get going with the semantic analysis in §5.3.

107 Thanks to my supervisor for pointing out this strategy.

5.2.2 | Binding

Conspicuously absent from the possessive DP in the LF for (5.2a) is a syntactic restrictor pronoun. I work on the basis that prenominal possessives lack such a pronoun, given robust binding data adduced by Elbourne (2008: 101). Precisely, if phrases like 'Mary's cat' introduced situation pronouns at LF, these pronouns would be available to be bound. If this were so, (5.4b) would have an available reading where 'Mary's cat' covaries with the antecedent quantified DP 'no cat of Mary's'. However, (5.4b) clearly lacks the reading indicated in (5.4c):

(5.4) a. John fed no cat of Mary's before the cat of Mary's was bathed.

b. John fed no cat of Mary's before Mary's cat was bathed.

c. There is no individual x such that x is a cat of Mary's and John fed x before the cat of Mary's identical to x was bathed.

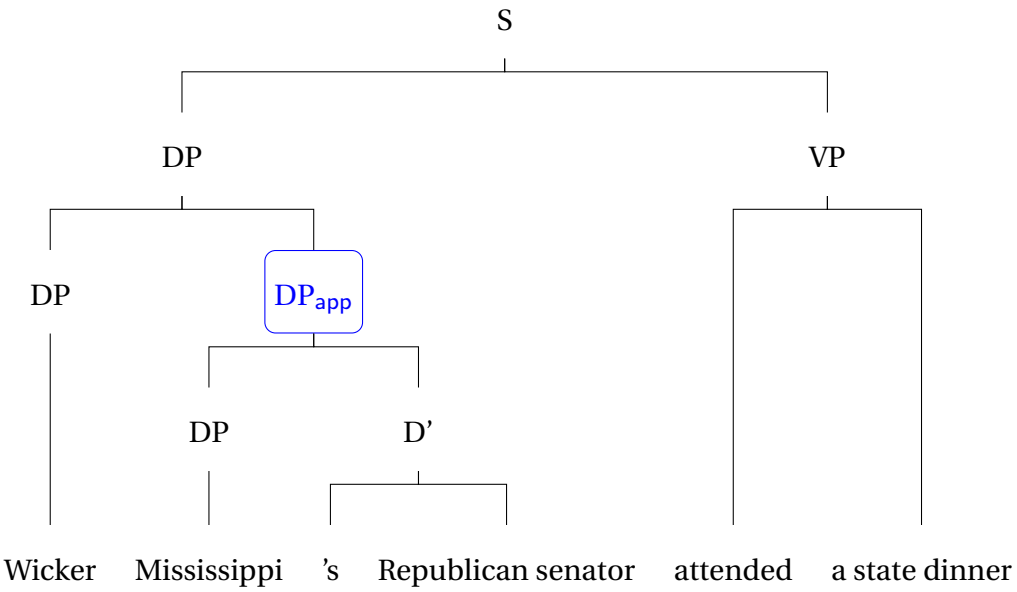
Sentence (5.4a), however, does exhibit a covarying reading. This is because the definite article introduces a restrictor pronoun that is bound by the quantified DP.[108] Syntactically, the difference between (5.4a) and (5.4b) is so minimal that it would seem the availability of a covarying reading turns on the presence of a definite article, and thus whether a restrictor pronoun occurs at LF, one that is available to be bound. On the basis of the unavailability of bound readings, I follow Elbourne (2008) and conclude that there is no syntactic restrictor pronoun in the LF of possessive DPs.

The argument from binding suggests an initially compelling approach to the puzzle of why appositive prenominal possessives lack precluded readings. As

108 Technically, a situation binder would bind the pronoun, and sit just below the quantifier at LF.

argued in Chapter 4 (§4.3.3), appositive descriptions exhibit precluded readings due to the availability of a restrictor pronoun—introduced by the definite article—within the appositive DP. This pronoun receives a referential interpretation, being mapped to a suitably small situation consisting of the referent of the anchor. Consequently, the uniqueness presupposition of an appositive description is enforced against only that individual, and the presupposition feels precluded. We have concluded from the binding data that possessive DPs lack a syntactic restrictor pronoun, so they will be unable to exhibit presupposition preclusion in the manner just stated:

(5.5) #Wicker, Mississippi's Republican senator, attended a state dinner.



There is no mechanism in place to limit the scope of the uniqueness test enforced by prenominal possessive descriptions. This seems to explain why the appositive constructions in (5.1) all lack a precluded reading.

This suggestion is complicated by the following datum, however.[109] Suppose that Mary owns multiple cats. We are looking after just one, called 'Tabby', and come home to see that all of the food left out in the cat bowl has disappeared. In this scenario, an utterance of (5.6) is felicitous:

(5.6) Tabby, Mary's cat, must have done that.

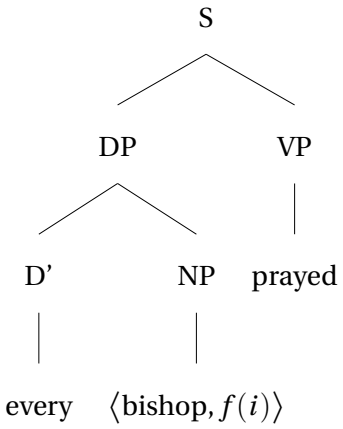
By stipulation, Mary owns more than one cat. So, the genitival appositive 'Mary's cat' is incomplete, and should be unable to refer. Intuitively, however, it successfully refers to exactly one cat in the context we are considering, namely, the unique cat owned by Mary that we are looking after. The description does not infelicitously presuppose that there exists only one cat owned by Mary.

The domain of the appositive's head noun must therefore be restricted in some way, if we are to account for the referential success of this possessive DP. The puzzle, then, is to find an independently motivated explanation for this datum, one that also predicts the unavailability of a precluded reading for (5.5). I consider a rival analysis in §5.2.3, and then turn to our situation-theoretic analysis in §5.2.4.

5.2.3 | Rival Analysis

According to Stanley & Szabó (2000), the domain of a quantified DP may be contextually restricted according to the value taken by a phonologically null contextual variable that *always* attaches to NPs at LF, as illustrated by the toy structure given below:

109 The following argument is adapted from Elbourne (2008: 106), who does not make this point about possessive descriptions occurring in appositive clauses.



This analysis is poised to explain how (5.6) exhibits preclusion. In the context of (5.6), i will be the house of the speaker, and f will be such that $f(i)$ delivers a set whose members are the objects in i. The value of $[\![\text{cat}]\!]^g$ is intersected with the value of $[\![f(i)]\!]^g$ in this context to restrict the extension of this NP. So, $[\![\text{Mary's cat}]\!]^g$ will denote the unique cat owned by Mary that is currently occupying the house of the speaker. However, the problem with this strategy is that it overgenerates. Co-habitation of a nominal and contextual variable is indicated to be obligatory (cf. Stanley & Szabó, 2000: 251), and all of the appositive constructions under consideration include a nominal. So, this theory predicts that precluded readings should be available to all constructions under consideration. However, the sentences in (5.1) lack felicitous readings, indicating that they lack precluded readings, contrary to what nominal domain restriction predicts. Elbourne (2008: 102) also points out that the presence of a contextual variable attached to NPs in the syntax would make a bound reading available for (5.4b), which is at odds with the binding data from (5.4).

5.2.4 | Situation Restriction

The problem for the situation-semantic analysis is one of *undergeneration*. It is unable to explain how (5.6) has a felicitous reading. This cannot come about by

manipulating a restrictor pronoun lurking at LF. If there were such a pronoun, it would be available to be bound, contrary to the data presented in (5.4).

Further, even though the NP in 'Mary's cat' will have a semantic situation argument that is λ-bound in its meta-language entry $\left(\lambda x.\lambda s.x \text{ is a cat in } s\right)$, this bound variable is unable to restrict the predicate sufficiently to stop the possessive DP from being improper. First, as I have argued in §4.3.5, there is good reason to treat CI meanings as combining by default with the broadest topic situation available. If the semantic situation argument for this nominal is only saturated by the topic situation, then the possessive will be improper: by hypothesis, Mary owns multiple cats in the world of utterance. Second, this strategy cannot explain the contrast between (5.6) and (5.5) anyway. The NP in the possessive DP in this latter sentence also has a semantic situation argument. If restriction via topic situation were a viable strategy, nothing would prevent (5.5) from being able, in theory, to be restricted enough to get a complete and felicitous reading. However, this sentence lacks a felicitous reading.

To sum up, the problem is this. The appositive description in (5.6) is felicitous, even though Mary owns multiple cats in the world of utterance. The appositive description in (5.5) is infelicitous, because Wicker is not the only Republican senator for Mississippi. The contrast cannot be due to either description occurring in an appositive clause, because both do. The contrast is not explained by nominal domain restriction, because both sentences contain NPs—which, according to this theory, must host contextual variables—and so this competing theory predicts an unattested precluded reading for (5.5). However, the contrast is also not predicted

by our favoured situation-semantic theory, which lacks the resources to explain the felicitous reading for (5.6).

To solve this problem, I argue that the availability of a precluded reading for (5.6) drops out from an independent analysis of possessive DPs, due to Barker (1995). This analysis, in combination with our situation-semantic analysis of appositive descriptions from Chapter 4, generates the correct empirical coverage, neither under- nor overgenerating precluded readings for appositive possessives.

5.3 | The Functional Divide

To start, I draw a distinction between two categories of noun: *relational* and *sortal*. The former denote relations between entities, while the latter denote sets of entities (cf. Janssen & Partee, 1997). For example, *birthday* is a relational noun because it denotes a relation between an individual and the day on which they were born. Second, within the 'relational' taxon there is a further division between *functional* and *non-functional* nouns (de Bruin & Scha, 1988). The former yield "a unique external argument for each internal argument" (Kalpak, 2020: 5): for instance, for each x, $[\![\text{mother}]\!](x)$ will yield a unique y, where y = the (biological) mother of x. Non-functional relational nouns include *pet, senator,* etc., because they need not yield a unique output for each internal argument. Individuals may have more than one pet, states more than one senator, and so on.

With this in mind, I present some novel data concerning the felicity patterns of possessive DPs. The general pattern that emerges illustrates a divide according to whether the head noun of these constructions is *non-functional* or not. In

§5.3.2, I show how these data point to an explanation as to why certain appositive possessive DPs do not exhibit presupposition preclusion.

5.3.1 | Data

Running with Elbourne's (2008) original example, observe that when a possessive DP is incomplete, there is a contrast in felicity across two dimensions. First, when the head noun is sortal (*cat*), the description is felicitous, but this is not so when the noun is relational but non-functional (*pet*):

(5.7) [Mary has several pets, all of which are cats. We are looking after only one, and come home to find that all the cat food has been eaten.]

a. Mary's cat must have done that.

b. #Mary's pet must have done that.

c. ?Mary's $[\text{BROWN}]_{\text{f}}$ cat must have done that.

d. #Mary's $[\text{BROWN}]_{\text{f}}$ pet must have done that.

As indicated above, adjectival modification of the head noun can also sound awkward. The only explanation I can see as to why this would be the case is that the focus-marking in (5.7c) triggers a scalar implicature to the effect that there are other non-brown cats owned by Mary that the speaker is currently looking after. This is, of course, false in the context of (5.7). Indeed, (5.8) indicates that adjectival modification is felicitous only when the speaker is also looking after at least one non-brown cat owned by Mary. So, the adjective is required to render the possessive DP as proper:

(5.8) [Mary has several pets. All of them are cats: one is ginger and the rest are brown. We are looking after one of her brown cats and the ginger one. We come home to find all the cat food has been eaten.]

a. #Mary's cat must have done that.

b. #Mary's pet must have done that.

c. Mary's [BROWN]$_f$ cat must have done that.

d. #Mary's [BROWN]$_f$ pet must have done that.

Finally, we observe a contrast according to whether a head noun is functional or non-functional. This is to be expected because functional nouns will yield a *unique* value for their internal argument, which guarantees that the uniqueness presupposition of possessive DP is satisfied:[110]

(5.9) [John has a mother and a father, who both turn up to attend his piano recital. Spotting John's father in the crowd, Lynsey utters to a friend:]

a. #John's parent is very tall.

b. John's father is very tall.

Overall, these data suggest that the uniqueness presupposition of a possessive description will track whether its head noun is non-functional or not. The initial contrast between (5.5) and (5.6) was between appositive possessive DPs that had a non-functional and a sortal head noun, respectively. Further, the infelicitous sentences in (5.1b) all include appositive possessive DPs with a non-functional

110 For simplicity, the following example assumes that 'father' and 'parent' lexically encode relations of *biological* kinship between individuals.

head noun. This indicates that splitting the divide along the 'functional' line is correct.

5.3.2 | Analysis

Barker's (1995) analysis of possessive descriptions is suited to explain this contrast. Where sortal nouns denote characteristic functions of type $\langle e, st\rangle$, relational nouns denote characteristic functions of type $\langle e, \langle e, st\rangle\rangle$:

(5.10) $[\![\text{birthday}]\!]^g =$

$\lambda y.\lambda z.\lambda s.$ z is a day in $s \wedge y$ is a person in $s \wedge y$ is born on z

The upshot is that relational nouns lexically encode a relation that links two entities of type e: intuitively, possessor and possessee. Sortal nouns carry no such relation, so one must be introduced. For the sake of exposition, I follow a suggestion in Barker (cf. 2011: 183) and assume that sortal nouns must be type-shifted from $\langle e, st\rangle$ into relational nouns of type $\langle e, \langle e, st\rangle\rangle$.[111] For this purpose, I provide a designated type-shifting operation that has been suitably adapted to deal with situation-semantic lexical entries:

(5.11) $\mathsf{rel} := F \rightarrow \left[\lambda y.\lambda z.\lambda s.F(z)(s) = 1 \wedge \pi(y)(z) = 1\right]$ $\quad \mathsf{rel} : \langle\langle e, st\rangle, \langle e, \langle e, st\rangle\rangle\rangle$

The free variable π introduced by the type-shift is a relation whose meaning must be pragmatically resolved. Accordingly, the genitive clitic '-s' receives a uniform semantic type. Following Barker (1995, 2000), I assume that it takes relational nouns of type $\langle e, \langle e, st\rangle\rangle$ and yields denotations of type $\langle e, e\rangle$:

111 Nothing hinges on this assumption. One could, alternatively, follow Janssen & Partee (1997) on this matter, and assume that there are two separate lexical entries for the clitic, where the entry that takes arguments of type $\langle e, st\rangle$ introduces a free relation variable. I find it cleaner to adopt a single entry for the clitic, and choose to introduce the free relation variable through a type-shift.

(5.12) $[\![\text{-s}]\!]^g = \lambda R_{\langle e,\langle e,st\rangle\rangle}.\lambda u : \exists!x \forall s'[R(u)(x)(s') = 1].\ \iota x \forall s'[R(u)(x)(s') = 1]$

Intuitively, after taking a relational property R, the resulting function then takes an entity u and—if defined—yields the unique object that stands in R to u.

To illustrate, here's a toy derivation for 'Mary's cat'. I assume for simplicity that π is pragmatically resolved as the relation $[\![\text{owned}]\!]^g = [\lambda z.\lambda y.\ y \text{ is owned by } z]$. Therefore, $\pi(\text{Mary})(x) = 1$ just in case x is owned by Mary. I assume further that Mary owns exactly one cat, so that the domain condition is met:

(5.13) $[\![\text{Mary's cat}]\!]^g$

$= [\![\text{-s}]\!]^g([\![\text{cat}]\!]^g)([\![\text{Mary}]\!]^g)$ (FAx2)

$= [\![\text{-s}]\!]^g(\lambda x.\lambda s.\ x \text{ is a cat in } s)(\text{Mary})$ (LTx2)

$= [\![\text{-s}]\!]^g(\lambda y.\lambda z.\lambda s.\ z \text{ is a cat in } s \wedge \pi(y)(z) = 1)(\text{Mary})$ (rel)

$= [\lambda R.\lambda u : \exists!x \forall s'[R(u)(x)(s') = 1].\ \iota x \forall s'[R(u)(x)(s') = 1]]$

$(\lambda y.\lambda z.\lambda s.\ z \text{ is a cat in } s \wedge \pi(y)(z) = 1)(\text{Mary})$ (LT)

$= [\lambda u : \exists!x \forall s'[x \text{ is a cat in } s' \wedge \pi(u)(x) = 1].$

$\iota x \forall s'[x \text{ is a cat in } s' \wedge \pi(u)(x) = 1]](\text{Mary})$ (λC.I)

$= \iota x \forall s'[x \text{ is a cat in } s' \wedge \pi(\text{Mary})(x) = 1]$ (λC.I)

As desired, the domain condition encodes the presupposition that there is exactly one cat owned by Mary. Therefore, if Mary doesn't stand in π to exactly one such x (i.e., there is no unique cat that she owns), the presupposition crashes. Otherwise,

composition proceeds, and the denotation of 'Mary's cat' is the unique x such that x is a cat owned by Mary.[112]

5.3.3 | Application

The upshot is that whenever a possessive description has a sortal head noun, the possessive relation must be pragmatically resolved through an assigned value to π. This affords a greater deal of flexibility than when the head noun is relational, in which case the relation is lexically encoded. For example, while 'John's birthday' can only pick out the day on which John was born, 'John's day' can mean *John's day to do the dishes*, *John's day to take the bins out*, *John's day to cook dinner*, and so on (cf. Barker, 2000: 216).

Now, in the context of (5.7), Mary owns multiple cats, but the speaker is looking after just one when they utter (5.7). Relative to this context of utterance, the free relation variable is naturally resolved ($\approx$) as indicated:

(5.7) Tabby, Mary's cat, must have done that.

$\pi \approx$ …*being presently looked after by the speaker and owned by*…

So, the presupposition of the appositive in (5.7) on this occasion of use is that there is exactly one cat owned by Mary that the speaker is looking after. This presupposition is satisfied, and the description refers to the unique entity in question:

112 In the entry for the clitic, the metalanguage situation variable for the relational noun R cannot be left free, because then there's no way to test the domain condition after some R is taken as argument by the clitic. To deal with this, I have opted for an internal quantifier over situations, like in the entry for 'only' (§4.5.1), whose domain is implicitly restricted to actual current situations. How this implicit restriction comes about poses a general question for the enterprise of situation semantics, one that I leave aside here.

Tabby. Hence, in appropriate contexts, appositive possessive descriptions with sortal head nouns will be felicitous, despite the lack of a restrictor pronoun at LF.

We now turn to why the appositives listed in (5.1) are infelicitous when uttered out of the blue. The head noun in each construction is relational but non-functional, so the noun may not yield a unique argument for each internal one that is fed in. This is the case with 'senator', because each state has two senators. Assuming the entry in (5.14), (5.15) details the denotation for the D' node in the LF for (5.5):[113]

(5.14) $[\![\text{Republican senator}]\!]^g =$

$\lambda y.\lambda z.\lambda s.$ z is a Republican politician in s $\wedge$ y is a state in s $\wedge$ z is state senator for y

(5.15) $[\![\text{-s Republican senator}]\!]^g =$

$\lambda u : \exists! x \forall s' [x$ is a Republican politician in s' $\wedge$ u is a state in s' $\wedge$ x is state senator for $u]$. $\iota x \forall s' [x$ is a Republican politician in s' $\wedge$ u is a state in s' $\wedge$ x is state senator for $u]$

The next step in composition would be for the denotation in (5.15) to combine with [[Mississippi]]. This can happen just in case the denotation of this item meets the domain condition rendered above, i.e., iff there is exactly one Republican

113 This order of variable arguments enables composition of sentences like those below:

(5.1) a. Roger Wicker is a Mississippi Republican senator.
b. The Republican senator for Mississippi. (*True genitive*)

The relational noun can combine with [[Mississippi]] first, yielding a property of type $\langle e, st \rangle$. This property can then be taken as argument by the copula or the definite article. It is also common to introduce a type-shifter to derive so-called 'one-place' readings for relational nouns, as in 'the senator is campaigning' (cf. Kalpak, 2020: 15).

senator who represents the state of Mississippi. So, composition cannot proceed: there are two serving Republican senators for Mississippi.

This analysis also predicts that possessive DPs with functional head nouns will be felicitous when uttered out of the blue. A defining feature of such nouns is that they yield exactly one entity for each internal argument that is fed in (cf. Partee & Borschev, 2012: 447). This is borne out, whether the description occurs as an appositive or not:

(5.16) a. Harvey's temperature is through the roof!

b. May 4th, Alice's birthday, is when the tea-party has been scheduled.

c. At 1.9×10^{27} kg, Jupiter's mass is greater than that of any other planet in the solar system.

For example, 'Harvey's temperature' will always be defined, because an individual can have only one internal body temperature at any given time.

5.4 | Summing up

Sometimes, incomplete possessive DPs exhibit true, felicitous readings. Other times, they do not. I have argued that this asymmetry is split according to whether the head noun of a possessive description is non-functional or not. Functional nouns will yield a unique value for each internal argument, so any uniqueness presuppositions are guaranteed to be satisfied. Sortal nouns introduce a free relation variable when type-shifted during composition. Accordingly, the availability of felicitous readings for incomplete possessives with sortal head nouns will depend on whether the contextual setup delivers a natural resolution for the

free relation. Further, this analysis, in combination with our situation-semantic decomposition of appositives, generates the correct empirical coverage as regards the availability of precluded readings for appositive possessives.[114]

114 An issue that requires further investigation lies in the realm of *kinship* terms. An odd quirk of this sub-class of relational noun is that the inherent lexical relation may be overriden to preclude biological kinship. As Barker (2000: 217) observes, if John is a nursery teacher, *John's child* can pick out the child currently being tutored by John. This is so even supposing that John has no children.

A Appendix

The following rules are taken from Heim & Kratzer (1998) and Elbourne (2013).

Definition A.1 [Functional Application (FA)]

If α is a branching node with daughters $\{\beta, \gamma\}$, then for any assignment g: if $[\![\beta]\!]^g$ is a function whose domain contains $[\![\gamma]\!]^g$, then $[\![\alpha]\!]^g = [\![\beta]\!]^g([\![\gamma]\!]^g)$.

Definition A.2 [Lexical Terminals (LT)]

If α is a terminal node occupied by a lexical item, then $[\![\alpha]\!]$ is specified in the lexicon.

Definition A.3 [Definition 13 (d.13)]

Let g be an assignment, $i \in \mathbf{N}$, and $x \in \mathcal{D}_e$. Then $g^{x/i}$ (read: 'g modified so as to assign x to i') is the unique assignment fulfilling the following conditions:

(i) $\mathrm{dom}(g^{x/i}) = \mathrm{dom}(g) \cup \{i\}$,

(ii) $g^{x/i}(i) = x$, and

(iii) for every $j \in \mathrm{dom}(g^{x/i})$ such that $j \neq i$, $g^{x/i}(j) = g(j)$.

Definition A.4 [λ-conversion I (λC.I)]

$[\lambda u_\tau .\, M](N_\tau) = [N/u]M$

Definition A.5 [λ-conversion II (λC.II)]

$$\lambda u_\tau : f(u) = 1.\big[\ldots[\lambda v_\tau : g(v) = 1.M](u)\ldots\big]$$

$$= \lambda u_\tau : f(u) = 1 \wedge g(u) = 1.\big[\ldots[u/v]M\ldots\big]$$

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