# TWO TYPES OF DEFINITES IN NATURAL LANGUAGE

A Dissertation Presented

by

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*For my fellow traveler,*
*who waited*
*on the other side.*

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# ABSTRACT

# TWO TYPES OF DEFINITES IN NATURAL LANGUAGE

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This thesis is concerned with the description and analysis of two semantically different types of definite articles in German. While the existence of distinct article paradigms in various Germanic dialects and other languages has been acknowledged in the descriptive literature for quite some time, the theoretical implications of their existence have not been explored extensively. I argue that each of the articles corresponds to one of the two predominant theoretical approaches to analyzing definite descriptions: the 'weak' article encodes uniqueness. The 'strong' article is anaphoric in nature. In the course of spelling out detailed analyses for the two articles, various more general issues relevant to current semantic theory are addressed, in particular with respect to the analysis of donkey sentences and domain restriction.

Chapter 2 describes the contrast between the weak and the strong article in light of the descriptive literature and characterizes their uses in terms of Hawkins's (1978) classification. Special attention is paid to two types of bridging uses, which shed

further light on the contrast and play an important in the analysis developed in the following chapters.

Chapter 3 introduces a situation semantics and argues for a specific version thereof. First, I propose that situation arguments in noun phrases are represented syntactically as situation pronouns at the level of the DP (rather than within the NP). Secondly, I argue that domain restriction (which is crucial for uniqueness analyses) can best be captured in a situation semantics, as this is both more economical and empirically more adequate than an analysis in terms of contextually supplied $C$-variables.

Chapter 4 provides a uniqueness analysis of weak-article definites. The interpretation of a weak-article definite crucially depends on the interpretation of its situation pronoun, which can stand for the topic situation or a contextually supplied situation, or be quantificationally bound. I make a specific proposal for how topic situations (roughly, the situations that we are talking about) can be derived from questions and relate this to a more general perspective on discourse structure based on the notion of Question Under Discussion (QUD) (Roberts 1996, Büring 2003). I also show that it requires a presuppositional view of definites. A detailed, situation-semantic analysis of covarying interpretations of weak-article definites in donkey sentences is spelled out as well, which provides some new insights with regards to transparent interpretations of the restrictors of donkey sentences.

Chapter 5 deals with so-called larger situation uses (Hawkins 1978), which call for a special, systematic way of determining the situation in which the definite is interpreted. I argue that a situation semantic version of an independently motivated type-shifter for relational nouns (shifting relations ($\langle e, \langle e, st \rangle \rangle$) to properties ($\langle e, \langle st \rangle \rangle$)) brings about the desired situational effect. This type-shifter also applies to cases of part-whole bridging and provides a deeper understanding thereof. Another independently motivated mechanism, namely that of Matching functions, gives rise to similar effects, but in contrast to the type-shifter, it depends heavily on contextual

support and cannot account for the general availability of larger situation uses that is independent of the context.

The anaphoric nature of the strong article is described and analyzed in detail in chapter 6. In addition to simple discourse anaphoric uses, I discuss covarying interpretations and relational anaphora (the type of bridging expressed by the strong article). Cases where uniqueness does not hold (e.g., in so-called bishop sentences) provide crucial evidence for the need to encode the anaphoric link between strong-article definites and their antecedents formally. The resulting dynamic analysis of strong-article definites encodes the anaphoric dependency via a separate anaphoric element that is incorporated into a uniqueness meaning. Finally, remaining challenges for the analysis are discussed, in particular the existence of strong-article definites without an antecedent and a puzzling contrast between the articles with respect to relative clauses.

The final chapter discusses some loose ends that suggest directions for future work and sums up the main conclusions.

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# CHAPTER 1

# INTRODUCTION

## 1.1 Two Perspectives on Definite Descriptions

Definite Descriptions have played a large role in the formal study of natural language meaning right from the (modern) beginnings on. Together with pronouns and indefinite descriptions, they provide speakers and hearers with a tool to keep track of the things that are being talked about. In the debate starting with early work in the philosophical tradition (Frege 1892, Russell 1905, Strawson 1950) and continuing with recent, more linguistically oriented formal semantic proposals, the question of what definite descriptions (and definite noun phrases more generally, including pronouns and demonstratives) contribute to the meaning of utterances has been answered in a number of different ways. There are two main lines of thought that are reflected in most approaches, however, which can be subsumed under the labels of uniqueness and familiarity. This thesis argues that both types of theories are needed to account for definite descriptions in natural language based on data involving two distinct definite articles in German.

### 1.1.1 Uniqueness

Uniqueness approaches build on the intuitive insight that we use definite descriptions to refer to things that have a role or property that is unique (relative to some domain, as will be discussed in detail below) and can thus be picked out with the appropriate description, e.g., *the king of France* or *the sun*. The Russellian side of the tradition builds a uniqueness condition directly into the truth-conditional content

by positing that a definite description *the P* denotes a quantifier that requires there to be one and only one *P*. A sentence such as (1a) then is assigned an interpretation equivalent to the logical formula in (1b).

(1)   a.  The King of France is bald.

       b.  $\exists x.[KoF(x)\&B(x)\&\forall y.[KoF(y) \rightarrow y = x]]$

Uniqueness-based accounts in the tradition of Frege and Strawson, on the other hand, holds that definite descriptions denote individuals (i.e., that they are of type *e*) and sees the uniqueness condition as a precondition for the felicitous use, or a presupposition, of definite descriptions. (1a) is then assigned the interpretation in (1c).

(1)   c.  $B(\iota x.KoF(x))$

          defined if and only if there is a unique King of France;

          true if and only if the unique King of France is bald,

          else, false.

One major challenge for both of these accounts is that something needs to be said about the extent to which uniqueness is supposed to hold, since there clearly are many felicitous and true examples involving definite descriptions whose descriptive content is true of more than one individual in the world. For example, if (2) is said in a lecture hall where there is exactly one projector hanging down from the ceiling, there is no problem whatsoever to talk about this projector by using the definite description *the projector*, even though there are many other projectors in the world, such as the ones in the adjoining lecture halls.

(2)   The projector is not being used today.

This is what is often called the problem of incomplete descriptions, and there are several approaches to resolving it. Roughly speaking, one option is to say that there

is more to this definite description than is apparent, i.e. that it has (or is interpreted to have) some additional, but hidden, descriptive content that will ensure that it denotes uniquely. Another option is to say that uniqueness does not have to hold with respect to the entire world, but rather just with respect to the relevant part of the world (e.g., a situation), in this case, the lecture hall that the speaker is in.

### 1.1.2 Familiarity and Anaphoricity

The second major approach to analyzing definite descriptions, usually associated with the label of familiarity, was introduced into the modern discussion by Heim (1982) (building on Christophersen (1939)).[1] It is based on the idea that they serve to pick out referents that are in some sense familiar to the discourse participants. While the literature is not always clear on what it takes for an individual to count as familiar, Roberts (2003) distinguishes two kinds of familiarity.[2] The broader notion of 'weak familiarity', which arguably corresponds (for the most part) to Heim's (1982) understanding of the term, allows for a number of ways in which something can be familiar, e.g., by being perceptually accessible to the discourse participants, via contextual existence entailment, or by being 'globally familiar in the general culture' (Roberts 2003, p. 304). In much of the literature following Heim (1982), however, the focus was on what Roberts (2003) calls 'strong familiarity', which essentially requires a definite to be anaphoric to a preceding linguistic expression. The example in (3) illustrates such a case.

(3)    a.   John bought **a book** and a magazine.

       b.   **The book** was expensive

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[1]See also Kamp (1981) for the independent but related representational proposal of Discourse Representation Theory (DRT).

[2]See also Prince (1981) for a similar distinction, namely that between Hearer-Old and Discourse-Old.

The definite *the book* in (3b) is clearly intended to pick out the very same book that was introduced with the indefinite *a book* in (3a). As the crucial feature of the definite in such cases is that it is interpreted as being anaphoric to a linguistic antecedent, I will refer to them as anaphoric uses. In modern linguistic work, approaches in this tradition, such as dynamic semantics (Heim 1982, Groenendijk and Stokhof 1990, Chierchia 1995) and Discourse Representation Theory (Kamp 1981, Kamp and Reyle 1993, and much work following them) provide various proposals for implementing familiarity (or anaphoricity) formally by encoding the relationship between an anaphoric definite and its antecedent directly in the semantics.

### 1.1.3 Covarying Interpretations of Definites

The examples we have seen so far can all be characterized, in pre-theoretical terms, as referential ones, since the definite description ends up picking out one particular individual that a claim is being made about (of course, in a Russellian theory the definite description would not be analyzed in referential terms, but it could still be described as being used to pick out an individual in the examples above).

One of the key challenges that modern work on definite descriptions tries to address is that definite descriptions also can have covarying interpretations in quantificational contexts of various kinds. For example, in (4) we seem to be dealing with a case of syntactic binding of the definite *the child*.

(4)    John gave every child a toy that he enjoyed more than the child.

(after Heim 1991)

A parallel phenomenon has been discussed, even more prominently, for cases of so-called donkey anaphora, such as (5a) and (5b). While much of the literature focuses

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on donkey pronouns (5a), it is uncontroversial that definite descriptions can play the same role (5b):[3]

(5)    a.  If a farmer owns a donkey, he beats it.

         b.  If a farmer owns a donkey (and a goat), he beats the donkey.

Neither the pronoun *it* nor the definite description *the donkey* are understood to be picking out one particular individual. Rather, they are understood to pick out different individuals for different farmers, i.e., their interpretation covaries with the indefinite *a donkey* in the antecedent clause. This is remarkable insofar as they cannot be syntactically bound by the indefinite, because it does not c-command them.

Providing a unified semantic analysis of definites that can account both for these types of uses as well as for the referential ones is a major challenge in this area of research. In doing so, we gain insights into the mechanisms available for introducing covarying interpretations in natural language. The theoretical discussion in the chapters to come will therefore include both referential and covarying interpretations of definite descriptions. Based on the German data that I will be concerned with, I will argue that there are (at least) two distinct mechanisms for introducing covariation available in natural language, which correspond to the two approaches sketched above: one type of definite can receive a covarying interpretation by being interpreted as picking out a unique individual relative to a situation that is being quantified over, whereas the other type covaries by being anaphorically dependent on a quantificational expression.

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[3]In fact, several recent analyses of donkey sentences (e.g., Berman 1987, Heim 1990, Elbourne 2005) are based on the idea that pronouns are basically covert definite descriptions (an idea that goes back to Postal (1969)).

### 1.1.4 Bridging

Yet another type of use of definite descriptions that will play an important role in the discussions to follow is illustrated by the following examples.

(6)    a.   John bought a book today.

       b.   The author is French.

(7)    a.   John was driving down the street.

       b.   The steering wheel was cold.

This type of use, often labeled 'Bridging' (Clark 1975), but also known as 'Associative Anaphora' (Hawkins 1978) or 'Inferrables' (Prince 1981), has often just played a side-role in the theoretical debates about definite descriptions. Accounting for bridging uses within a general analysis of definites poses an intriguing theoretical challenge and integrating them fully into our analysis provides new perspectives and insights. Therefore, bridging will play an integral role in the analysis in the chapters to come, as it provides important evidence in the analysis of the two types of definites that this thesis is about. These will be introduced in the following section.

## 1.2   Languages with Two Types of Definite Articles

While both uniqueness- and familiarity-based approaches seem to capture important uses of definites, it also is clear that each of them faces some serious challenges in extending its account to the core examples covered by the other. This has given rise to attempts to integrate features of both approaches into one theory to provide a unified account (Kadmon 1990, Roberts 2003, Farkas 2002). This thesis explores the possibility of addressing these challenges by proposing that different uses require dif-

ferent analyses. The motivation for this comes from languages that employ different types of articles for different types of uses.[4]

The vast majority of the literature on the meaning of definite descriptions focuses on English *the*, but much can be gained by broadening our empirical perspective and looking beyond English. There are numerous languages and dialects that have been claimed in the descriptive literature to have two semantically distinct articles. The present work will predominantly focus on a contrast found in standard German, where we find two forms in configurations where a preposition precedes a definite article, as illustrated in (8). I will refer to the article involved in the contracted form in (8a) as the 'weak article', and the one in the non-contracted form in (8b) as the 'strong article.'

(8)  a.  *Hans ging **zum** Haus.*
         Hans went to-the$_{weak}$ house
         'Hans went to the house.'

     b.  *Hans ging **zu dem** Haus.*
         Hans went to the$_{strong}$ house
         'Hans went to the house.'

The two forms come with a subtle contrast in meaning, which is the main subject of the present investigation. Parallel contrasts between different article forms can be found in various other languages and dialects, as will be discussed in chapter 2, and I occasionally draw on data from some of these languages as well.

While the theoretical literature on definite descriptions generally aims at a unified analysis of all types of uses, taking empirical evidence from such languages into

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[4]Roberts (2003, pp. 304-5) explicitly acknowledges the possibility that definites in different languages may require different types of familiarity, but she proposes a unified account based on weak familiarity for English. While I do not focus on English, some of the evidence presented in chapter 6 supporting a role for strong familiarity (or anaphoricity) in our theory seems to carry over to English as well. The proposal by Farkas (2002) also may leave the possibility for allowing languages to distinguish different types of definites.

consideration changes the general outlook on the analysis of definiteness in natural language substantially. If there are languages that formally distinguish different types of definite articles that are restricted to certain types of uses, a unified account cannot be the whole story. Such languages require more complex accounts that provide different analyses for the different forms, with the goal of getting the cut exactly right with respect to the types of uses to which each form can be put. Developing such an account will afford us more detailed insights into the building blocks, if you will, that are available to natural languages in building definite articles, and thus provide us with an empirically more adequate perspective on definiteness across languages.

The general project pursued here is very much in line with developments in other areas of research in linguistics semantics. For example, a lot of work has been done in recent years on the cross-linguistic investigation of the interpretation of indefinite noun phrases (Haspelmath 1997, Reinhart 1997, Winter 1997, Kratzer 1998, Matthewson 1999, as well as many papers following this seminal work), which has uncovered subtle differences between different types of indefinite noun phrases, both within and across languages. The analysis developed in the following chapters pursues a similar goal, by investigating the subtle contrast between the weak and the strong article in German. In theoretical terms, the basic claim will be that the weak article can be best characterized as requiring uniqueness (relativized to a situation), whereas the strong article has an anaphoric nature.[5]

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[5]I should note that in addition to the two main lines of analysis that I consider here, various other proposals relating to the semantics (and pragmatics) of definite noun phrases exist. For example, there are analyses based on salience (Lewis 1979, von Heusinger 1997), as well as ones making use of choice functions (von Heusinger 1997, Chierchia 2005). Furthermore, there are various proposals within Centering Theory (Grosz, Joshi and Weinstein 1995), as well as ones based on Gundel, Hedberg and Zacharski's (1993) Givenness Hierarchy. While my discussion will focus on uniqueness and anaphoricity, this does not necessarily preclude that aspects of such theories have a role to play in a comprehensive theory that captures the full spectrum of phenomena involving definites.

## 1.3  Overview of the Thesis

The structure of the following chapters is as follows. In chapter 2, I describe the contrast between the weak and the strong article in more detail and review what has been said about it in the existing literature. My description of the various uses of definites utilizes the classification developed by Hawkins (1978). In addition to standard uniqueness and anaphoric uses, I discuss bridging uses (or associative anaphora, in Hawkins' terminology) in some detail and present a questionnaire study that shows that different types of bridging are expressed by different articles. The two types of bridging shed further light on the properties of the two articles and will be integrated into the general analysis in the later chapters. In short, bridging with the weak article will be analyzed as being based on part-whole relationships (involving unique parts), whereas the strong article is used for what I call 'relational anaphora', i.e., cases where the relatum argument of a relational noun is interpreted anaphorically. I close by summarizing the main generalizations and laying out the the theoretical approach developed in the rest of the thesis.

Chapter 3 introduces a situation semantics in which I couch my analysis and argues for a specific version thereof. In particular, I propose that situation arguments in noun phrases are represented syntactically as situation pronouns at the level of the DP (rather than within the NP).[6] I then turn to the issue of domain restriction, which is crucial for any uniqueness-based analysis. After reviewing the standard proposal in the literature, based on contextually supplied $C$-variables, I argue that a situation semantic approach based on the situation pronoun in the DP provides all we need to account for domain restriction. Such an account is shown to be both more economical, as it is independently motivated, and empirically more adequate than

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[6]A note on terminology: I use the term 'noun phrase' somewhat loosely, generally to refer to what I consider a DP in technical terms. 'NP', on the other hand, is used to refer to the proper part of the DP that is headed by an N.

*C*-variable approaches. Finally, I review some of the challenges that we have to face in incorporating quantification over situations into our semantics.

With the basic background in place, chapter 4 provides a situational uniqueness analysis of weak-article definites. The interpretation of a given weak-article definite crucially depends on the interpretation of its situation pronoun. It can be identified with the topic situation, introduce a contextually supplied situation, or be quantificationally bound. While the notion of topic situations is often left vague in the literature (e.g., only roughly characterized as the situation that we are talking about), I make a specific proposal for how topic situations can be derived from questions. My proposal fits into a more general perspective on discourse structure based on the notion of Question Under Discussion (QUD) (Roberts 1996, Büring 2003), which, in turn, is couched in a theory of the common ground in the sense of Stalnaker (1978). I show that this framework is also suitable for capturing the presuppositional nature of the uniqueness requirement of the weak article in a situation semantics. Finally, I provide an analysis of covarying interpretations of weak-article definites. While the basic approach builds on earlier situation semantic work on donkey anaphora (Berman 1987, Heim 1990, Büring 2004, Elbourne 2005), my analysis provides some new insights, in particular with regards to transparent interpretations of the restrictors of donkey sentences.

Chapter 5 deals with a further type of use of the weak article, which Hawkins (1978) calls larger situation uses.[7] These pose a particularly interesting challenge in our analysis, as they call for a systematic way of determining the right type of supersituation to ensure uniqueness. I argue that a situation semantic version of an independently motivated type-shifter for relational nouns (shifting relations ($\langle e, \langle e, st \rangle \rangle$) to properties ($\langle e, \langle st \rangle \rangle$)) brings about the desired situational effect. As this type-shifter

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[7]But note that Hawkins does not present his analysis in terms of a situation semantics, although it crucially involves the related notion of locations.

builds on the part-whole relationship between the relevant entities, it also applies to cases of part-whole bridging and provides a deeper understanding thereof. Another independently motivated mechanism, namely that of Matching functions, gives rise to similar effects, but in contrast to the type-shifter, it depends heavily on contextual support and cannot account for the general availability of larger situation uses that is independent of the context.

The anaphoric nature of the strong article is described and analyzed in detail in chapter 6. In addition to simple discourse anaphoric uses, I discuss covarying interpretations and relational anaphora (the type of bridging expressed by the strong article). Cases where uniqueness does not hold (e.g., in so-called bishop sentences) provide crucial evidence for the need to encode the anaphoric link between strong-article definites and their antecedents formally. The resulting analysis of strong-article definites is presented as a variant of a dynamic approach to anaphora. However, rather than assuming that the semantic effect of the according definites as a whole is to introduce a variable (as in standard dynamic accounts), a separate anaphoric element is incorporated into a uniqueness meaning, namely in the form of a syntactically represented anaphoric index that can be dynamically bound. This keeps the meanings of the weak and the strong articles maximally similar while accounting for their differences. Finally, remaining challenges for the analysis are discussed, in particular the existence of strong-article definites without an antecedent and a puzzling contrast between the articles with respect to relative clauses.

The final chapter sums up the main conclusions and discusses some loose ends that suggest directions for future work.

# CHAPTER 2

# TWO TYPES OF DEFINITE ARTICLES

The first section of this chapter will show in detail that standard German, like various Germanic dialects, makes a formal distinction between two semantically different types of definites. Next, I go on to characterize the main types of uses of the two forms, utilizing Hawkins's (1978) classification of uses of definites. In the course of this discussion the picture that emerges is that each of the definite articles seems to correspond to one of the two main theories of definites outlined in chapter 1, i.e. one of them seems to be crucially based on uniqueness, while the other seems to involve some notion of anaphoricity. The last section summarizes the main generalizations and sketches the direction of the analysis to be developed, which accounts for the various uses in the descriptive classification within detailed versions of the two theoretical approaches.

## 2.1 A Morphological Contrast between Definite Articles in Germanic Dialects

It has been well known for quite some time in the descriptive literature that there are Germanic dialects that have more than one morphological paradigm for expressing definite articles. The first detailed discussion that I am aware of dates back to Heinrichs (1954), who discusses dialects of the Rhineland (see also Hartmann 1967). Other dialects for which this phenomenon has been described include the Mönchen-Gladbach dialect (Hartmann 1982), the Cologne dialect (Himmelmann 1997), Bavarian (Scheutz 1988, Schwager 2007), and, perhaps the best documented case, the

Frisian dialect of Fering (Ebert 1971a, Ebert 1971b).[1] The Fering paradigm is provided as an example in (9), and an example sentence for each of the two article forms is given in (10).[2]

(9) **The definite article paradigms in Fering**

|  | m.Sg. | f.Sg | n.Sg. | Pl. |
|---|---|---|---|---|
| A-form (weak article) | a | at | at | a |
| D-form (strong article) | di | det (jü) | det | dön (dö) |

(Ebert 1971b, p. 159)

(10)   a.  *Ik skal deel tu a     / \*di     kuupmaan.*
            I must down to the$_{weak}$ / the$_{strong}$ grocer
            'I have to go down to the grocer.'

      b.  *Oki hee an hingst keeft.  \*A    / Di     hingst haaltet.*
            Oki has a horse bought the$_{weak}$ / the$_{strong}$ horse limps
            'Oki has bought a horse. The horse limps.'

(Ebert 1971b, p. 161)

Turning to standard German, a number of authors have observed that it exhibits a morphological contrast that appears to be entirely parallel to the one encoded by the distinct article paradigms in the dialects mentioned above: in certain environments, a preposition and a definite article following it can contract (Hartmann 1978, Hartmann 1980, Haberland 1985, Cieschinger 2006). The example in (8) from chapter 1 provides a first illustration.

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[1] Leu (2008) discusses an apparently similar phenomenon in Swiss German, though he focuses on syntactic issues.

[2] English glosses and paraphrases for Fering examples from Ebert's work (Ebert 1971a, Ebert 1971b) are my translations from the German originals. The glosses for the articles have been adapted to follow my terminology outlined below.

| Contracted form (*zum*)<br>(≈ Ebert's A-form) | **weak** article | glossed as $P\text{-}the_{weak}$ |
|---|---|---|
| non-contracted form (*zu dem*)<br>(≈ Ebert's D-form) | **strong** article | glossed as $P\ the_{strong}$ |

**Table 2.1.** Terminology for the German Article Forms

(8)   a.  *Hans ging **zu dem** Haus.*
          Hans went to  the$_{strong}$ house
          'Hans went to the house.'

      b.  *Hans ging **zum** Haus.*
          Hans went to-the$_{weak}$ house
          'Hans went to the house.'

A brief note on terminology: Ebert uses the labels 'A-form' and 'D-form' for the two articles, which reflects the particular shape of the articles in Fering. In the literature on the contracted and non-contracted forms in standard German, the two forms are referred to as such, i.e., as contracted vs. non-contracted. In order to have a uniform terminology across languages, I will use the terms 'weak article' (corresponding to Ebert's A-form) and 'strong article' (corresponding to Ebert's D-form) for the corresponding forms in all the languages and dialects discussed in this work, as summarized in Table 2.1.[3] It is, in principle, possible, of course, that there turn out to be differences between the various languages and dialects listed here, which might ultimately speak against unifying the terminology. As far as I can tell, the relevant phenomena are completely parallel, however, and I therefore will assume as a null-hypothesis that the same contrast is present in all of them.

Before turning to the issue of primary concern for us - the semantic and pragmatic dimension of the contrast between the two article forms - a few words about the general distribution of the contracted form are in order. In formal registers, contraction

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[3]This is also the terminology adopted by Schwager (2007)

is only available with a limited set of prepositions and definite articles in certain case and gender-marked forms. The Duden Grammar of German (Eisenberg, Gelhaus, Henne and Wellmann 1998, p. 323) lists the following prepositions as allowing contractions:[4]

(11)   an, auf, außer, bei, durch, für, hinter, in, neben, über, um, unter, von, vor, zu

The article forms that allow contractions, again according to Eisenberg et al. (1998), are *dem* (masc./neut., dative), *den* (masc., accusative), *das* (neutr., nominative/accusative), and *der* (fem., dative).[5] There is something of a continuum in terms of the degree to which contracted forms are acceptable in formal, written German according to the standard prescriptive norms. While the forms in (12a) are generally accepted in all registers, including the most formal, the ones in (12b) are regarded as more colloquial, and the ones in (12c) are rarely found in written language (the non-contracted alternatives are provided in parentheses)(Eisenberg et al. 1998, p. 325).

(12)   a.   am (an dem), beim (bei dem), im (in dem), ins (in das), vom (von dem), zur (zu der), zum (zu dem)

   b.   aufs (auf das), durchs (durch das), fürs (für das), hinterm (hinter dem), hinters (hinter das), überm (über dem), übern (über den), übers (über das), ums (um das), unterm (unter dem), untern (unter den), unters (unter das), vorm (vor dem), vors (vor das)

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[4]Since prepositions are notoriously hard to translate, I refrain from giving direct translations for individual prepositions here; all examples involving full sentences below of course will have English proxies in the glosses that are appropriate in the given context.

[5]Eisenberg et al. (1998) only list the forms, not the case and gender features, but as far as I can tell, only the gender and case combinations I list here show up in contractions, which may simply be due to the fact that prepositions never assign, say, nominative case, ruling out *der* (masc., nominative). Also, I only consider singular forms here, since contractions with plural forms (e.g., *zu'n Professoren* (to the professors) are restricted to colloquial speech. Note, however, that in principle the phenomenon is not restricted to the singular, as can be seen from the fact that languages with a full paradigm for both forms have them both in the singular and the plural.

| prep + article | # contracted | # non-contracted | ratio |
|---|---|---|---|
| zum / zu dem | 10844 | 466 | 23.270 |
| am / an dem | 6519 | 512 | 12.732 |
| zur / zu der | 4458 | 361 | 12.349 |
| im / in dem | 17141 | 1640 | 10.452 |
| beim / bei dem | 3251 | 655 | 4.963 |
| vom / von dem | 3136 | 991 | 3.164 |
| ins / in das | 1981 | 638 | 3.105 |
| unterm / unter dem | 77 | 187 | 0.412 |
| aufs / auf das | 341 | 1008 | 0.338 |
| ums / um das | 153 | 541 | 0.283 |
| durchs / durch das | 115 | 467 | 0.246 |
| fürs / für das | 177 | 788 | 0.225 |
| vorm / vor dem | 53 | 581 | 0.091 |
| hinterm / hinter dem | 0 | 122 | 0 |
| übern / über den | 0 | 889 | 0 |
| übers / über das | 0 | 812 | 0 |
| untern / unter den | 0 | 247 | 0 |

**Table 2.2.** Frequency of contracted and non-contracted forms in Amazon reviews

c. an' (an den), an'r (an der), auf'm (auf dem), auf'n (auf den), aus'm (aus dem), durch'n (durch den), fürn (für den), gegen's (gegen das), in'n (in den), mit'm (mit dem), nach'm (nach dem), zu'n (zu den)

A cursory inspection of a large online corpus of book and DVD reviews on amazon.de nicely illustrates the spectrum of frequencies of contracted forms relative to the corresponding non-contracted forms in written language.[6] The forms in (12a) are found far more frequently relative to their non-contracted counterparts than the ones in (12b), as shown in Table 2.1 (forms not listed did not occur at all, neither in the contracted nor the non-contracted form).

As Schaub (1979) notes, colloquial speech in many dialects allows a far wider range of contracted forms, such as those in (12c), as well as others, e.g., *auf'e (auf die), in'e*

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[6]The corpus is part of the UMass Amherst Linguistics Sentiment Corpora (Constant, Davis, Potts and Schwarz 2009). For detailed information on this corpus, see Potts and Schwarz (2008).

*(in die)* etc. Furthermore, reduced forms in spoken language of the definite article also appear after words of other category types, e.g., after auxiliaries, complementizers, and pronouns:

(13)  a.  *Ich **hab's**          Fahrrad vergessen.*
          I    have-the$_{weak}$  bike    forgotten
          'I forgot the bike'

      b.  *Peter ist sauer, **weil's**          Zimmer so klein ist.*
          Peter is   mad    because-the$_{weak}$ room    so small is
          'Peter is mad because the room is so small.'

      c.  *Hans hat mir erzählt, dass **er's**          Haus verkauft hat.*
          Hans has me   told       that he-the$_{weak}$  house sold     has
          'Hans told me that he sold the house.'

Finally, the contrast is probably more widely present even in fairly formal registers of spoken language, as there is a general phonological contrast in the pronunciation of definite articles that seems to come with a parallel semantic effect (Ito and Mester 2007, and p.c.). In order to avoid interference from normative pressures, which generally disfavor contracted forms, with the judgments of native speakers, this work will focus on examples involving contracted forms that are most widely accepted in the standardized written form. While this may give the impression that we are looking at a small phenomenon in a particular corner of German morphology, it should be kept in mind that the contrast is present quite generally in spoken language, and that there are several dialects that have full independent paradigms for each of the forms of the definite article. It is also interesting to note that similar contrasts seem to exist in unrelated languages as well, e.g. in Lakhota (Buechel 1939) and Hausa (see Lyons 1999, for an overview). The question of whether the phenomena there are really parallel to the Germanic contrast is an important issue for future research (see chapter 7).

There is an interesting question about the morphological relationship between the two article forms. Given their form both in standard German (where the contrast only appears in certain environments in the first place) and in the various dialects, it seems plausible that the weak article is in some sense a reduced form derived from the strong article, either synchronically or diachronically.[7] Hinrichs (1986) already argued that the reduction process cannot be a phonological one (as proposed by Schaub 1979), primarily because there is a semantic contrast between the two forms and the choice between them is not optional in various syntactic environments. An alternative analysis is that the determiner cliticizes onto the preposition (Zwicky 1982), which has the advantage that it can easily be extended to cases where the determiner appears in reduced form adjacent to items belonging to other syntactic categories (13). However, Hinrichs (1986) argues against a cliticization analysis, based on rate-of-speech related phenomena such as interjections and pauses (14), and on data involving conjunction (15).[8]

(14)  a.  i.  *Er ist jetzt schon   zum,      eh, eh, fünften Mal zu  spät*
              He is  now  already to-the$_{weak}$ , eh, eh, fifth    time too late

              *gekommen.*
              come

              'This is the eh, eh, fifth time that he has been late.'

      ii.  * *Er ist jetzt schon   zu, eh, eh, 'm      fünften Mal zu  spät*
              He is  now  already to, eh, eh, the$_{weak}$ fifth    time too late

              *gekommen.*
              come

---

[7]But note that Lyons (1999, p. 329) argues that the two are in fact independent of one another, historically speaking, and that (what I call) the weak article is the older form.

[8]Thanks to Arnold Zwicky for bringing Hinrich's paper to my attention.

b. i. * *Sie trug's,*     *wenn ich mich recht erinnere, goldene*
She wore-the$_{weak}$ if    I    me    right   remember golden

       *Halsband.*
necklace

ii.     *Sie trug, wenn ich mich recht erinnere, 's*     *goldene*
She wore if    I    me    right   remember the$_{weak}$ golden

       *Halsband.*
necklace

'She wore, if I recall correctly, the golden necklace.'

(15) a.    *vor'm*        *und hinter'm*     *Haus*
in front of-the$_{weak}$ and behind-the$_{weak}$ house

b. * *vor*     *dem*     *und hinter'm*     *Haus*
in front of the$_{strong}$ and behind-the$_{weak}$ house

                                       (Hinrichs 1986)

With preposition-article contractions, such as in (14a), an interjection cannot intervene between the two. In cases in which the article cliticizes on other syntactic material, on the other hand, we find the opposite pattern (14b). Hinrichs argues that this contrast speaks against a cliticization account for preposition-article contractions. Furthermore, he sees the impossibility of contracting only one of the two preposition-article pairs in coordination structures, as in (15), as supporting this conclusion. The proposal he makes in response to this is that cases like *vom* are not the result of combining an article and a preposition, but rather are inflected prepositions.

While the contrast in (14) is indeed interesting from a morphological perspective, I do not see it as providing conclusive evidence against the assumption that *vom NP* involves a (weak) definite article in the underlying structure. In particular, given that the semantic properties of contractions with prepositions are identical to cases where the article attaches to other syntactic material (as well as to the weak article in other dialects), assuming that both of these cases involve the same article (namely, the weak article) is the most straightforward semantic analysis. Furthermore, if we rephrased

a sentence containing *vom NP* without the preposition, the definite article would resurface. With respect to the coordination facts in (15), it would seem that using different articles within the same (conjoined) noun phrase is ruled out for semantic reasons (cf. English *to the and from the train station* vs. *\*to that and from the train station*).

For the purposes of this investigation, I will therefore continue to assume that preposition-article contractions involve what I call the weak definite article, without committing myself to any particular morphological analysis of how the preposition and the article relate to one another. As far as the relationship between the two articles is concerned, it seems highly plausible that they are closely related to one another, either synchronically or diachronically. The semantic analysis I develop will take this into account in that the meanings that I propose for them are highly similar in a way that should be compatible with morphological accounts that derive one form from the other. It will be an important task for future work to investigate the interplay of the semantics and morphology of preposition-article contractions in more detail.

Turning to the distribution of the articles, there are environments in which it is quite clear that only one of the two forms is acceptable. The Duden Grammar (Eisenberg et al. 1998) notes, for example, that there are many idiomatic phrases that have to be formed with the weak article, as illustrated by the examples in (16)

(16)   a. *Jetzt is alles      im        / #in dem     Eimer.*
          Now  is everything in-the$_{weak}$  / #in  the$_{strong}$  bucket
          ≈ 'Everything has gone down the drain now.'

       b. *Hans fährt zur       / #zu der     See.*
          Hans goes  to-the$_{weak}$  / to    the$_{strong}$  sea
          ≈ 'Hans is a sailor.' or 'Hans goes to sea.'

c. *Meiers wohnen am / #an dem Arsch der Welt.*
Meiers live at-the$_{weak}$ / at the$_{strong}$ ass the$_{Gen}$ world
literally: 'Meiers live at the ass of the world.'

d. *Der Apfel fällt nicht weit vom / #von dem Stamm.*
the apple falls not far from-the$_{weak}$ / from the$_{strong}$ (tree-)trunk.
'The apple doesn't fall far from the trunk of the tree' (saying)

In all these examples, the strong article forces the sentence to receive a literal interpretation (which may or may not make any sense; '#' here simply indicates that the idiomatic reading becomes unavailable).

Other cases that the Duden notes as requiring the weak article include reference to dates, and superlatives. Progressive verb forms and deverbal nominalizations, both of which are expressed with the infinitival form of the verb, also require the weak article.

(17) a. *Die Mauer fiel am 9. November 1989.*
the wall fell on-the$_{weak}$ 9th November 1989
'The wall fell on November 9th, 1989.

b. *Hans tanzt am besten.*
Hans dances on-the$_{weak}$ best
'Hans dances the best.'

c. *Hans ist am Arbeiten.*
Hans is at-the$_{weak}$ working
'Hans is working.'

d. *Hans hat viel Freude am Tanzen.*
Hans has much joy at-the$_{weak}$ dancing
'Hans really enjoys dancing.'

While the idiomatic cases in (16) will not play a role in our theoretical discussion, some of these cases in (17) are relevant to the difference in meaning between the two article forms, as will become clear in the next section.

One construction that has been noted to generally require the strong article is that of definite noun phrases with a restrictive relative clause (Hartmann 1978, Eisenberg et al. 1998, Ebert 1971b, among many others)

(18)   *Fritz ist jetzt *im        / in dem      Haus, das  er sich    letztes Jahr*
       Fritz is   now  in-the$_{weak}$ / in the$_{strong}$ house that he REFL last     year

       *gebaut hat.*
       built    has

       'Fritz is now in the house that he built last year.'

                                                               (Hartmann 1978, p. 77)

Some theoretical implications of this puzzling contrast will be discussed in chapter 6, section 6.4.2. In connection with this observation, it is also worth noting that relative pronouns, which generally have the same form as the definite article, never can contract with a preposition in cases of pied piping.

(19)   *Fritz wohnt jetzt in dem Haus, *vom   / von dem er schon   seit  Jahren*
       Fritz lives    now in the  house of-RP? / of   RP  he already since years

       *schwärmt.*
       raves

       'Fritz now lives in the house that he has been raving about for years.'

More generally, the strong article has a pronominal variant, i.e., it (or a homophonous variant of it) can appear without an (overt) NP-complement, whereas the weak article requires an overt noun phrase.

(20)   a. *Peter hat bei dem       Mann angerufen.*
          Peter  has by the$_{strong}$ man   called.
          'Peter called the man.'

       b. *Peter hat bei dem        angerufen.*
          Peter  has by the$_{strong}$ called.
          'Peter called him.'

(21)  a.  *Peter hat beim        Bürgermeister angerufen.*
         Peter  has by-the$_{weak}$  mayor             called.
         'Peter called the mayor.'

      b.  * *Peter hat beim        angerufen.*
          Peter  has by-the$_{weak}$  called.

This pattern is interesting in light of proposals that analyze pronouns as covert definite descriptions (going back to Postal (1969), and most recently argued for by Elbourne (2005)). For some brief comments on the relationship of the present work to the analysis of pronouns, see chapter 7.

## 2.2   Types of Uses of the two Articles

Let us now turn to the types of uses that each of the definite articles allow. Although a classification of uses of definite descriptions ultimately depends on the type of analysis (or analyses) one adopts, and the one chosen below is structured with an eye towards the theoretical discussion in the following chapters, the attempt is to provide a general descriptive survey that hopefully is of general use. Hawkins's (1978) classification of major types of uses of definites will serve as a useful starting point. I will then discuss for each use in detail which of the article forms is appropriate in German (with occasional reference to other Germanic dialects with two definite article paradigms). After an in-depth discussion of the major types of uses, a number of further usage types and their relationship to the German articles are briefly surveyed as well.

### 2.2.1   Hawkins' Classification of Definite Article Uses

In this section, I first introduce the major distinctions between usage types that Hawkins (1978) makes, and then show that three of the four classes that I discuss map straightforwardly onto the article contrast in German, in that each of them is expressed by either the weak or the strong article. The one class for which this corre-

spondence does not hold is that of bridging (Hawkins' *associative anaphora*), which will play an important role in the theoretical discussion in the following chapters.

| Type of Definite Use | Example |
|---|---|
| ***Immediate situation*** | *the desk*       (uttered in a room with exactly one desk) |
| ***Larger situation*** | *the prime minister* (uttered in the UK) |
| ***Anaphoric*** | *John bought a book and a magazine. The book was expensive.* |
| ***Associative Anaphora*** (***Bridging***) | *John bought a book today. The author is French.* <br><br> *John was driving down the street. The steering wheel was cold.* |

**Table 2.3.** Classification of Definite Uses (after Hawkins (1978))

Hawkins (1978) distinguishes a range of different types of uses of definite descriptions. An overview of the major classes is given in Table 2.3.[9] He characterizes these uses roughly as follows:[10] The first important class of uses of definite descriptions consists of the so called anaphoric ones, where the interpretation of a definite seems to depend on that of a preceding expression, typically an indefinite noun phrase. Thus, in

(22)    a.  John bought a book and a magazine.

          b.  The book was expensive.

the definite description *the book* is understood to be the very book that John was said to have bought in the first sentence. There is a non-trivial question about how

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[9]The other classes he identifies will be pointed out in passing in the discussion of further types of uses below.

[10]Some of the more detailed aspects of his discussion will come up in the discussion of the German forms below.

the definite comes to have its meaning determined in this way. In particular, we would like to understand more precisely what the nature of the relationship between the definite and its so-called antecedent is. In familiarity-based approaches such as file change semantics, DRT, or dynamic semantics, the anaphoric relationship between the definite and its antecedent is encoded formally in the semantics assigned to the discourse as a whole. This perspective will be discussed in more detail in chapter 6.

Immediate situation uses in Hawkins' sense involve reference to individuals or entities which are present in the utterance situation and are unique in that situation in meeting the descriptive content of the definite description. So, in an office that contains exactly one desk, one can use the definite *the desk* felicitously to talk about the unique desk in that office. In chapter 4, I provide a general analysis of situational uniqueness uses, based on the situation semantic framework introduced in chapter 3, which specifies in more detail what situations weak article definites can be interpreted in.

In the case of larger situation uses, the speaker also ends up referring to an individual or entity that uniquely meets the descriptive content of the definite description, but in this case, it is not present in the immediate utterance situation. Instead, it is part of a larger situation. Determining just which larger situation this is is far from trivial. In chapter 5, I argue in detail that this use has to be distinguished from other situational uniqueness uses and develop a proposal for doing so building on the situation semantic analysis from chapters 3 and 4. For the moment, it may suffice to provide an example for purposes of illustration: when people use the definite description *the prime minister* while in the UK (or while talking about the UK), this is usually understood to be referring to the (current) British prime minister. The 'larger situation' here is presumably simply the country that the utterance situation is part of. But, again, just how it is determined which larger situation is relevant will be an important issue discussed in more detail in chapter 5.

Relating immediate and larger situation uses to the general theoretical approaches to analyzing definites, it should be clear that both of these cases suggest themselves to a uniqueness based analysis (with a suitable implementation of domain restriction). In both cases, definites pick out an individual by virtue of the descriptive content being true of just one individual in a given realm.

Associative Anaphora (or bridging) uses of definite descriptions make up a particularly interesting class. The general property distinguishing them is that the definite relates back to the context in an interesting, somewhat indirect way, which has similarities both with the situation uses and the anaphoric uses. One could consider them, for example, to be a special case of the anaphoric use, except that the antecedent is not the referent of the definite itself, but stands in some salient relationship to it. Take example (6), repeated from chapter 1.

(6)    a.  John bought a book today.

        b.  The author is French.

The definite *the author* is clearly understood as relating back to the indefinite *a book* in the first sentence - in particular, we understand the author to be the author of that book. However, given examples like (7), also from chapter 1, one could also argue for another perspective, namely that bridging definites are instances of situation uses.

(7)    a.  John was driving down the street.

        b.  The steering wheel was cold.

The definite *the steering wheel* doesn't refer back to an antecedent in any way (because there isn't one), but rather is understood to refer to the unique steering wheel in the driving-situation talked about in the first sentence.

Given that there seems to be some variation within bridging uses, one could either consider it as a separate class of its own that just happens to have some similarities to the other ones (Hawkins 1978), or argue that it doesn't constitute a class of its

own in the first place, and that we are rather looking at different sub-cases of some of the other classes. Based on the bridging data with the German definites, I will argue for the latter, and subsume different types of bridging uses under the more general analysis of the two German articles.

Given this classification of the basic uses of definite descriptions, there are two main strains that the following discussion will follow. On the one hand, we want to explore the empirical dimension and figure out how the distinct forms in languages like German and Fering relate to them, i.e., determine which forms can be used for which uses. On the other hand, we want to keep an eye on the main theoretical analyses that have been proposed for definite descriptions and evaluate how well they can account for the various types of uses. As we saw at the beginning of the chapter, the theoretical proposals generally tend to take one of the uses as their basic starting point and then try to extend the analysis to the others. Finally, bringing these two strains back together, this brings us to the main question of the present research project, namely how we can best analyze the different forms of the definite article and their uses in theoretical terms.

### 2.2.2 Anaphoric Uses of the Strong Article

#### 2.2.2.1 Discourse Anaphoric Definites with the Strong Article

With Hawkins' classification in place, we can now turn to the question of which German article is appropriate for the various types of uses. Starting with the anaphoric use, it is generally agreed upon in the literature on the two types of German definites that (what I call) the strong article is the appropriate form for this type of use. In fact, the most common characterization of the contrast between the weak and strong articles that is found in the literature locates the difference between them in their ability to be used anaphorically (and demonstratively; see below). The following representative quote from Hartmann summarizes this view:

Den Unterschieden zwischen den beschriebenen formalen Eigenschaften bei Verschmelzungen und Vollformen [. . .] [entsprechen] Unterschiede in der Art und Weise, wie definite Beschreibungen in den Textzusammenhang eingeführt worden sind: Vollformen des *der*-Artikels werden als anaphorische und deiktische Elemente [. . .] verwendet, Verschmelzungen in definiten Ausdrücken vor allem in nicht-anaphorischen Gebrauchsweisen.

The differences between the described formal properties of contracted forms [weak article; FS] and full forms [strong article; FS] correspond to differences in the way definite descriptions have been introduced into the textual context: full forms of the *der*-article are used as anaphoric and deictic elements, contracted forms in definite expressions are primarily used non-anaphorically.

(Hartmann 1980, p. 180)

The Duden Grammar (Eisenberg et al. 1998) notes along the same lines:

In zahlreichen Fällen kann neben der Verschmelzung auch die Präposition mit dem bestimmten Artikel gebraucht werden. Der Artikel verweist dann entweder auf ein außersprachliches Objekt oder auf ein sprachliches Objekt, das durch einen Relativsatz oder den Rede- und Textzusammenhang näher erläutert wird und somit identifiziert ist.

In many cases, prepositions with a [strong; FS] definite article can be used in addition to the contracted forms [weak article; FS]. The article then refers either to a non-linguistic object or to a linguistic object that is further defined by a relative clause or the utterance or discourse context and therefore is identifiable.

(Eisenberg et al. 1998, p. 324)

Krifka (1984) also argues for a distinction along similar lines, by distinguishing definites based on shared world knowledge from those whose referents have been linguistically introduced:[11]

Man muß jedoch mindestens zwei Arten von Definitheit unterscheiden: solche, die sich aus dem gemeinsamen Weltwissen von Sprecher und Hörer speist, und solche, die sich auf eine vorhergegangene Einführung eines Referenten in den laufenden Text gründet. Die erste Art nenne ich im folgenden W-Definitheit, die zweite T-Definitheit. Diese Differenzierung ist einmal aus diskurspragmatischen Gründen gerechtfertigt, zum anderen gibt es zahlreiche Sprachen, welche die beiden Definitheitsarten unterschiedlich markieren. Dazu gehören viele deutsche Dialekte mit ihren zwei Reihen definiter Artikel (vgl. z.B. [Ebert 1971a] zum Nordfriesischen, Hartmann 1982), aber z.B. auch das Lakhota, eine Sioux-Sprache (Janice Williamson, pers. Mitt.). [. . .]

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[11]I will return to the 'shared world knowledge' kind of definiteness, which calls for the use of the weak article, in section 2.2.3.

At least two kinds of definiteness have to be distinguished: one that is based in the common world knowledge of speaker and hearer, and another that is based on the prior introduction of a referent in the ongoing text. In the following, I call the former W-definiteness, the latter T-definiteness. This distinction is for one justified by discourse pragmatic reasons, but also by the fact that there are various languages that mark the two types of definiteness differently. These include numerous German dialects with their two series of definite articles (cf., e.g., [Ebert1971a], Hartmann1982), but also Lakhota, a Sioux-language (Janice Williamson, p.c.).

(Krifka 1984, p. 28)

Similar views can be found in much of the research on weak/contracted forms and strong/non-contracted forms in German and its dialects (Ebert 1971b, Haberland 1985, Scheutz 1988). In order to evaluate the view that anaphoricity is essential for the strong article, it is crucial, of course, what exactly is meant by that notion. While I will review some of the theoretical options for implementing it technically in chapter 6, I think it is fair to say that the basic intuition that is generally shared is that for a definite to be anaphoric its meaning has to be dependent on the interpretation of a previously occurring (and typically indefinite) noun phrase.

Let us now turn to some examples that illustrate the contrast between the two forms in this respect most clearly, i.e., where only one of them can be felicitously used anaphorically. In all of the following examples, an individual is introduced with an indefinite in the first sentence that is then referred back to anaphorically in the second sentence with a definite description.[12]

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[12]Using definite descriptions anaphorically can sometimes lead to a certain amount of pragmatic markedness, presumably because a pronoun could have done the job in a more straightforward and more economic manner. My general strategy to avoid this confounding factor, put to use in (23), is to introduce multiple possible antecedents to motivate the use of a full definite for purposes of disambiguation.

(23)  *Hans hat einen Schriftsteller und* **einen Politiker** *interviewt. Er hat*
  Hans has a     writer      and a     politician  interviewed He has

  **#vom**     */* **von dem**    **Politiker** *keine interessanten Antworten*
  from-the$_{weak}$ / from the$_{strong}$ politician no    interesting   answers

  *bekommen.*
  gotten

  'Hans interviewed a writer and a politician. He didn't get any interesting

  answers from the politician.'

(24)  *Hans hat heute* **einen Freund** *zum   Essen mit  nach Hause gebracht. Er*
  Hans has today a      friend    to-the dinner with to   home   brought  He

  *hat uns vorher    ein Foto* **#vom**     */* **von dem**    **Freund** *gezeigt.*
  has us  beforehand a    photo Of-the$_{weak}$ / of   the$_{strong}$ friend    shown.

  'Hans brought a friend home for dinner today. He had shown us a photo of

  the friend beforehand.'

(25)  *In der New Yorker Bibliothek gibt   es    **ein Buch** über   Topinambur.*
  In the New York    library    exists EXPL a   book  about topinambur.

  *Neulich  war ich dort und habe* **#im**     */* **in dem**   **Buch** *nach einer*
  Recently was I    there and have in-the$_{weak}$ / in  the$_{strong}$ book   for    an

  *Antwort auf die Frage    gesucht, ob     man Topinambur grillen kann.*
  answer   to  the question searched whether one topinambur   grill    can.

  'In the New York public library, there is a book about topinambur. Recently,

  I was there and searched in the book for an answer to the question of whether

  one can grill topinambur.'

(26)  *Bei    der Gutshausbesichtigung hat mich* **eines der    Zimmer**
  During the mansion tour         has me    one    the$_{GEN}$ rooms

  *besonders beeindruckt. Angeblich  hat Goethe im        Jahr 1810 eine*
  especially impressed    Supposedly has Goethe in-the$_{weak}$ year 1810 a

  *Nacht* **#im**     */* **in dem**    *Zimmer verbracht.*
  night  in-the$_{weak}$ / in the$_{strong}$ room    spent

  'One of the rooms especially impressed me during the mansion tour. Suppos-

  edly Goethe spent a night in the room in 1810.'

(27)  A:  *Hast Du schon  mal einen Studenten durchfallen lassen?*
Have you already once **a     student**  fail         let
'Have you let a student fail a test before?'

B:  *Ja.  **Von dem / #vom Studenten** habe ich nie   wieder etwas*
Yes. Of    the  / of-the   student     have I   never again   something
*gehört.*
heard
'Yes. I never heard from the student again.'

As can be seen in (27), the anaphoric dependency can not only create a link across sentence boundaries, but also across utterances by different speakers. While the NP-description of the anaphoric DP in the cases above happens to be the same as that used in the antecedent DP, it does not have to be the same, but can be much more general (28). It can even be an epithet (29), which arguably does not contribute any descriptive content to the truth-conditional interpretation of a sentence at all (Potts 2005).

(28)  *Maria hat einen Ornithologen ins    Seminar eingeladen. Ich halte*
Maria  has an     ornithologist to-the seminar  invited.    I    hold
***#vom    / von dem    Mann** nicht sehr viel.*
of-the$_{weak}$ / of   the$_{strong}$ man   not   very much
'Maria has invited an ornithologist to the seminar. I don't think very highly of the man.

(29)  *Hans hat schon  wieder angerufen. Ich will  #vom      / von dem Idioten*
Hans  has already again   called.    I    want of-the$_{weak}$ / of   the$_s$ idiot
*nichts mehr hören.*
not    more  hear.
'Hans has called again. I don't want to hear anything anymore from that idiot.

Ebert (1971a) provides an example illustrating the anaphoric use of the strong article (which she calls 'D-Article') in the dialect of Fering:

(30)  *Peetje hee jister    an kü₁ slaachtet.   Jo   saai, det      kü₁ wiar äi*
     Peetje has yesterda a   cow slaughtered. One says  the$_{strong}$ cow was  not

     *sünj.*
     healthy

     'Peetje has slaughtered a cow yesterday. One says the cow was not healthy.'

     Fering (Ebert 1971a, p. 107)

About anaphoric uses of the strong article, she writes:

> In kommunikativer Funktion signalisiert der bestimmte Artikel lediglich die Bekanntheit des Referenten. Im Gegensatz zum Deutschen zeigt der D-Artikel im Föhring zusätzlich an, daß der Referent auf Grund sprachlicher Spezifikation identifizierbar ist.
> The communicative function of the definite article is to signal familiarity of the referent. In contrast to German, the D-article in Fering additionally indicates that the referent is identifiable by means of linguistic specification.
>
> (Ebert 1971a, p. 107)

Ebert does not specifically say in this particular case that the weak article is impossible, but this seems at least likely based on her discussion in other places.

There is ample evidence, then, that anaphoric uses of a definite description are generally expressed with the strong article. The weak article, on the other hand, is not felicitous in any of the above examples (23-29).

### 2.2.2.2   Covarying Anaphoric Uses

In addition to referential uses, definites also can receive covarying interpretations, as was already mentioned earlier, e.g. in donkey anaphoric uses (Heim 1982, Kamp 1981).[13]  What is important for our present purposes with respect to the German definite articles is that we find the same pattern of anaphoric dependency for strong-article definites in covarying uses as we do for discourse anaphoric uses:

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[13]The term 'donkey anaphora' has stuck in the literature as a label for the phenomenon, and is even adopted by theories whose main point is that there is no anaphoric relationship between the 'donkey anaphor' and its antecedent.

(31) *Jedes Mal, wenn ein Ornithologe im          Seminar einen Vortrag hält,*
Every time when an ornithologist in-the$_{weak}$ seminar a     lecture holds

*wollen die Studenten #vom        / von dem       Mann wissen, ob*
want   the students   of-the$_{weak}$ / of  the$_{strong}$ man   know    whether

*Vogelgesang grammatischen Regeln folgt.*
bird singing grammatical    rules    follows
'Every time an ornithologist gives a lecture in the seminar, the students want

to know from the man whether bird songs follow grammatical rules.'

(32) *In jeder Bibliothek, die  ein Buch über  Topinambur hat, sehe ich*
In every library      that a  book about topinambur  has  look I

*#im        / in dem      Buch nach, ob       man Topinambur grillen kann.*
in-the$_{weak}$ / in the$_{strong}$ book PART whether one  topinambur   grill    can
'In every library that has a book about topinambur I check in the book

whether one can grill topinambur.'

(33) *Jedes Mal, wenn mir bei      einer Gutshausbesichtigung eines der*
Every time when me during a      mansion tour              one   the$_{GEN}$

*Zimmer besonders gefällt, finde ich später heraus, dass eine berühmte*
rooms   especially like    find  I  later  out      that a   famous

*Person eine Nacht #im        / in dem      Zimmer verbracht hat.*
person a    night  in-the$_{weak}$ / in the$_{strong}$ room   spent     has
'Every time when I particularly like one of the rooms during a mansion tour,

I later find out that a famous person spent a night in the room.'

These quantificational examples, which closely resemble their non-quantificational
counterparts above, exhibit exactly the same pattern with respect to the availability
of the strong article, as well as the unavailability of the weak article. This paral-
lel between discourse anaphoric and covarying uses of these definite descriptions is
important because from a theoretical perspective, it is an important question how
anaphoric dependencies at the discourse level relate to those in quantificational con-
texts. Approaches that focus on the pragmatics of reference resolution of definites,
for example, such as Centering Theory (Grosz et al. 1995) and theories based on the

Givenness Hierarchy (Gundel et al. 1993) are limited in this regard, since it is not clear how their claims about referential uses can be transferred to covarying cases.[14] The fact that both the strong and the weak article seem to exhibit exactly the same behavior in these two environments therefore will be crucial for the analyses we develop for them. Furthermore, the account we come up with for the contrast between the two in terms of their ability to serve as an anaphoric definite has to carry over from the referential realm to the covarying cases.

### 2.2.2.3  Demonstrative Uses

Before moving on to the next type of use in Hawkins' classification, there is one more type of use that should be discussed in connection with the anaphoric uses. As the quotes from the literature on the weak and strong articles above already showed, the strong article has demonstrative uses in addition to the anaphoric ones. However, such uses typically involve a pitch accent on the determiner, which suggests that they have a special status. Hawkins does not discuss such uses since he focuses on English, where the definite article *the* does not allow for them. The German strong article, on the other hand, routinely does allow for such uses:[15]

(34)  *Hans ist in DEM      Auto [pointing at car 1] gekommen, nicht in DEM*
       Hans is  in the$_{strong}$  car    [pointing at car 1]   come          not    in the$_{strong}$

       *Auto [pointing at car 2]*
       car    [pointing at car 2]
       'Hans came in that car, not in that car.'

---

[14]But see Roberts (1998) for a proposal of integrating centering into a dynamic approach to anaphora.

[15]In fact, Heim (1991) refers to non-contracted forms in environments that allow for contraction as involving a demonstrative article.

(35) Context: Mary and John are watching a news report about the St.-Marien-Hospital in Osnabrück. Mary says to John:

*Ein Freund von mir wohnt direkt gegenüber von dem / #vom*
A friend of mine lives directly across of the / of-the

*Krankenhaus.*
hospital

'A friend of mine lives right across the street from that / the hospital.'

(modeled after an example by Cieschinger 2006, p. 4)

(36) *Deest dü mi ans dèt búk auer?*
give you me PART. the$_{strong}$ book over

'Can you hand me the / that book?'          Fering (Ebert 1971a, p. 103)

The entities picked out by the strong-article definites in these examples are present in the utterance context[16], and referring to them demonstratively is possible only with the strong article. About (36), which is assumed to be accompanied by a pointing gesture, Ebert writes that '[...] the demonstrative article is necessary if there is a choice of several books in the given situation.' (Ebert 1971a, p. 103). See also Wolter (2006c) for discussion of this type of context as typical for the use of English *that*.

One question that arises in connection with these demonstrative examples is whether the strong article simply is a demonstrative corresponding to English *that*. In fact, even in some of the previous (non-deictic) examples considered so far the English translation is probably better with *that* than with *the* (e.g., (27), (35), (36)). But there are many other occurrences of the strong article that wouldn't (or needn't) be translated with *that* (e.g., (25), (26), (30), (32), etc.). So there seems to be an overlap of the strong article with *that*, but not a complete one. Furthermore, it is worth noting that there are alternative demonstrative expressions in both German and its dialects that presumably contrast with the strong article. The analysis in chapter 6

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[16]The hospital in (35) is at least present indirectly in the context since it is shown on television

indeed could perhaps also be relevant for the analysis of English *that*. This is in line with the recent trend to see demonstratives as a special case of definite noun phrases (King 2001, Roberts 2002, Wolter 2006c, Elbourne 2008), rather than as completely different, directly referential expressions along the lines of the influential analysis by Kaplan (1989). The question of how this type of cross-linguistic variation might fit into a larger typological picture for definites and demonstratives will be discussed briefly in chapter 7.

There do not seem to be any truly demonstrative uses of the weak article, at least if we restrict this notion to uses accompanied by an actual pointing to an object that is necessary in order to help identify it for the hearer. This does not mean, however, that there aren't any uses of the weak article where the referent is simply something that is present in the context of utterance. With respect to (36) above, Ebert notes:

> Gibt es nur éin Buch in greifbarer Nähe des Angesprochenen, kann auch der A-Artikel stehen. Er **muss** stehen, wenn während des Sprechaktes nicht durch eine Hand- oder Kopfbewegung oder einen Blick auf den intendierten Gegenstand verwiesen wird.
>
> If there is only **one** book in reachable distance for the addressee, then the [weak; FS] A-article can be used as well. It **must** be used if there isn't a pointing by hand or head or gaze to refer to the intended object.

<div align="right">(Ebert 1971a, p. 104)</div>

A similar contrast can be observed in (37):

(37)  *Smatst'  mi ans    at      pokluad auer?*
      throw-you me PART. the$_{weak}$ pencil    over
      'Can you throw the pencil to me?'                    (Ebert 1971a, p. 104)

About the context of this sentence, Ebert writes:

> A liegt auf dem Teppich und liest. Ohne aufzublicken bittet er B, der am Schreibtisch sitzt [37]. [...] Diese Äußerung ist nur dann adäquat, wenn A weiß, daß nur ein einziger Bleistift in B's greifbarer Nähe liegt. Der D-Artikel ist in dieser Situation unmöglich. Blickt A jedoch von seiner Lektüre auf und schaut den gewünschten Gegenstand an, kann sowohl A- als auch D-Artikel stehen, auch wenn der gemeinte Gegenstand durch die Situation eindeutig spezifiziert [...] ist. Ausschlaggebend ist, daß durch die hinweisende Geste der Referent identifiziert werden könnte.

A is lying on the carpet and reading. Without looking up, he asks B, who is sitting at the desk, [(37)] [...] This utterance is only adequate if A knows that there is only a single pencil in reachable distance for B. The [strong; FS] D- article is impossible in this situation. If A looks up from his reading and looks at the desired object, both the [weak; FS] A- and the [strong; FS] D-article can be used, even if the intended object is uniquely specified in the situation [...] What matters is that the referent could be identified by means of the pointing gesture.

(Ebert 1971a, p. 104)

Ebert's discussion of this example indicates that the difference between the two articles lies in how their conditions of use relate to the context. While the strong article seems to require that a referent for the definite description has been introduced linguistically in the preceding discourse or is provided by a deictic gesture, the weak article seems to require that there is one and only one individual (in the given context) that matches the descriptive content of the noun phrase. This brings us to the next type of use, the situational uniqueness use, which requires the weak article.

### 2.2.3 Uniqueness Uses of the Weak Article

### 2.2.3.1 The Weak Article and Situational Uniqueness

Ebert's (1971a) discussion of (38) provides a nice introduction to the central use of the weak article.

(38)  a. *A        hünj hee tuswark.*
         the$_{weak}$  dog   has tooth ache
         'The dog has a tooth ache.'

      b. *Di        hünj hee tuswark.*
         the$_{strong}$  dog   has tooth ache
         'The dog has a tooth ache.'

(Ebert 1971a, p. 83)

Beide Äußerungen setzen voraus, daß der Hörer bereits weiß, welcher Hund gemeint ist. Die Voraussetzungen sind aber für [(38a)] und [(38b)] verschiedener Art. [(38b)] ist eine adäquate Äußerung, wenn der Hund im vorhergehenden Text spezifiziert wurde; der D-Artikel weist dann anaphorisch auf den Textreferenten. [(38a)] setzt voraus, daß der gemeinte Hund

37

nicht näher spezifiziert zu werden braucht, weil zur Zeit und am Ort des Sprechaktes nur ein einziger Hund als Referent in Frage kommt.

> Both utterances presuppose that the hearer already knows which dog is meant. But the presuppositions for [the two forms] are of a different nature. [(38b)] is an adequate utterance if the dog was specified in the preceding text; the [strong; FS] D-article then refers anaphorically to the text referent. [(38a)] presupposes that the intended dog does not need to be specified any further, because there is only one dog at the time and place of the speech act that could be meant.

(Ebert 1971a, p. 83)

What apparently is crucial to make the weak article available, both in this case and in (37) above, is that there is a unique referent fitting the description of the noun phrase. A deictic gesture or a textual antecedent, on the other hand can make the strong (D-) article possible, whether or not there is a unique referent meeting the descriptive content of the noun phrase in the context.

In terms of Hawkins' classification, Ebert's Fering examples in (38a) (as well as in 37) are clear cases of immediate situation uses. With respect to the nature of the uniqueness condition, Krifka (1984) further characterizes the non-anaphoric uses of the weak article in more detail by tying them to the shared world knowledge of speakers and hearers, as his discussion of the following example shows.

(39)   (Was ist los? [What is going on?])

   a.  *Der Postbote kommt.*
       the   mailman  comes
       'The mailman is coming.'

   b.  *?Der Mann kommt.*
       the    man    comes
       'The man is coming.'

(Krifka 1984, p. 28)

> *Der Postbote* ist ein typischer W-definiter Ausdruck: er referiert auf einen bestimmmten Funktionsträger, den man in häuslichen Kontexten so wenig eigens in den Text einführen muß wie Unikate, z.B. den Mond. *Der Mann* kann sich hingegen in den meisten Kontexten nur auf einen im laufenden Text einqeführten Referenten beziehen; Mann zu sein identifiziert meist keine Entität aus dem gemeinsamen Weltwissen von Sprecher und Hörer.

> *The mailman* is a typical W-definite expression: it refers to a particular functional role that is no more required to be introduced in domestic contexts than unique entities such as the moon. *The man*, however, can only refer to a referent introduced in the ongoing discourse in most contexts. Being a man usually does not identify one entity in the common world knowledge of speaker and hearer.
>
> <div align="right">(Krifka 1984, p. 28)</div>

This view based on shared world knowledge is, of course, very much in line with the general perspective on presuppositions in the tradition of Stalnaker (Stalnaker 1973, Stalnaker 1974, Stalnaker 1978, Stalnaker 2002), which sees the common ground of mutually shared speaker and hearer knowledge as the place where presuppositions have to be satisfied. I will return to this aspect of the interpretation of the weak article in chapter 4 in more detail.

Turning to German examples in light of Hawkins' classification, it is clear that both immediate and larger situation uses generally require the weak article, as can be seen from the examples below.[17]

(40) **Immediate Situation Use**

*Das Buch, das du suchst, steht im / #in dem Glasschrank.*
the book that you look for stands in-the$_{weak}$ / in the$_{strong}$ glass-cabinet

'The book that you are looking for is in the glass-cabinet.'

---

[17]The marked status of the strong article forms in immediate situation uses is sometimes graded. This can be due, for one thing, to the contracted form not being fully acceptable from a prescriptive standpoint (as in (40), for example), but also to the possibility of a truly demonstrative use (with some type of pointing gesture) of the strong article. The judgments here reflect my own intuitions about what would be the most natural form to use. (The subtlety of the differences in the conditions of use for these cases is capture well by Ebert's discussion of (36) and (37) above.) If these sentences occur in a context where there is an antecedent for the strong-article definite, it of course becomes perfectly acceptable.

(41)   **Larger Situation Use**

*Der Einbrecher ist zum Glück vom      / #von dem      Hund verjagt*
the burglar    is luckily    by-the$_{weak}$ / by    the$_{strong}$ dog   chase away

*worden.*
been

'Luckily, the burglar was chased away by the dog.'

(42)   **Larger Situation Use**

*Der Empfang wurde vom      / #von dem      Bürgermeister eröffnet.*
The reception was    by-the$_{weak}$ / by    the$_{strong}$ mayor      opened

'The reception was opened by the mayor.'

(43)   **Global Situation Use**

*Armstrong flog als erster   zum      Mond.*
Armstrong flew as  first one to-the$_{weak}$  moon

'Armstrong was the first one to fly to the moon.'

Ebert provides similar examples of larger situation uses for Fering:

(44)  *A     sarkkooken ringd jister    inj.*
the$_{weak}$  church bells rang  yesterday night
'The church bells rang yesterday night.'

(45)  *A     köning kaam to bischük.*
the$_{weak}$  king    came to visit
'The king came for a visit.'

<div align="right">Fering (Ebert 1971a, p. 82-83)</div>

In all of these cases, the weak-article definites are understood as referring to the unique individual that has the relevant property in the suitably sized context. One could characterize this by saying that they uniquely denote within a specific situation.[18] The size of the situation that is considered can vary, e.g. from a family

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[18]A precise analysis of what situations weak-article definites can be interpreted in is presented in chapter 4.

context (38a, 40, 41) to a town (42, 44), a whole country (45), or the world as a whole (43). In Ebert's words, all these examples have in common '[...] that they can refer without further specification', and show that the 'A-article can also refer to objects that are not globally unique in certain cases, i.e., to 'situationally unique objects" (Ebert 1971a, p. 71).

Yet another piece of evidence for the crucial role of uniqueness for the weak article comes from the following minimal pair, which suggests that it constitutes a necessary condition for its use.

(46) a. *In der Kabinettsitzung heute wird ein neuer Vorschlag vom*
In the cabinet meeting today is a new proposal by-the$_A$

**Kanzler** *erwartet.*
chancellor expected

'In today's cabinet meeting, a new proposal by the chancellor is expected.'

b. # *In der Kabinettsitzung heute wird ein neuer Vorschlag vom*
In the cabinet meeting today is a new proposal by-the$_A$

**Minister** *erwartet.*
minister expected

'In today's cabinet meeting, a new proposal by the minister is expected.'

It is generally known that the cabinet consists of the chancellor and all the ministers. Given any normal cabinet meeting situation, there will be several ministers but only one chancellor. As can be seen in (46a), it is perfectly fine to refer to the chancellor in that situation with a weak-article definite. However, if we replace *chancellor* with *minister*, as in (46b), the sentence becomes odd. If it makes sense at all, the hearer accommodates that only one minister is present at this rather strange cabinet meeting. Another possible context in which (46b) is felicitous would be if the speaker and the addressee have a special relationship to one of the ministers, e.g., because they're working for one. In such a case, the weak article would refer to that minister

to which they have a unique relationship. In either case, this goes to show, then, that the weak article can only be felicitously used when there is a unique individual that the hearer can single out by means of the description, either because it is the unique individual meeting the description in the situation talked about or in a situation that is salient to both the speaker and the hearer (this informal characterization will be formally implemented in a situation semantic framework in chapter 4).

A similar point about the weak article requiring uniqueness can be made in connection with (26) from above, where the first sentence makes it clear that a place with more than one room is under discussion.

(26) *Bei   der Gutshausbesichtigung hat mich **eines der**   **Zimmer***
During the mansion tour       has me   one   the$_{GEN}$ rooms

*besonders beeindruckt. Angeblich  hat Goethe im     Jahr 1810 eine*
especially impressed    Supposedly has Goethe in-the$_{weak}$ year 1810 a

*Nacht **#im**   / **in dem**   Zimmer verbracht.*
night  in-the$_{weak}$ / in the$_{strong}$ room    spent

'One of the rooms especially impressed me during the mansion tour. Supposedly Goethe spent a night in the room in 1810.'

Additional support for the idea that uniqueness is crucial for the weak article comes from the fact that whenever the semantic content of the noun phrase description ensures uniqueness, the weak article is used. Cases in point include noun phrases containing a superlative adjective, and nouns like *original*:

(47)  a. *Auf unserer Reise nach Tibet sind wir natürlich auch zum   / #zu*
      on  our    trip  to   Tibet are  we of course also to-the$_{weak}$ / to

      *dem    höchsten Berg    der    Welt gefahren.*
      the$_{strong}$ highest  mountain the$_{GEN}$ world driven

      'On our trip to Tibet, we of course went to visit the highest mountain of the world.'

b. *Man kann die Kopie des    Gemäldes kaum vom   Original*
one  can  the copy  the$_{Gen}$ painting   barely of-the original

*unterscheiden.*
distinguish

'One can barely distinguish the copy of the painting from the original.'

The meaning of the superlative *zum höchsten Berg der Welt* in (47a) implies that only one mountain can be the highest. Nouns like *original* in (47b) imply that there is one distinguished entity that is the original of an artwork, for example.

In (47a), the domain within which uniqueness holds is explicitly given as the entire world, but in most cases, including many of the examples discussed above, it is clear that uniqueness does not necessarily hold globally - this is the issue of incomplete descriptions mentioned earlier. In such cases, uniqueness will be evaluated relative to an implicitly restricted domain. Chapter 3 discusses domain restriction in detail and argues for a situation semantic analysis thereof. Chapter 4 spells out the role of situational domain restriction in the analysis of weak-article definites.

### 2.2.3.2   Covarying Uses of the Weak Article

As was the case with the strong article, it is clear that in addition to the referential uses considered so far, there also are cases where definite descriptions with the weak article receive a covarying interpretation in a quantificational context.

(48)  *Jedes Mal, wenn eine Runde vorbei ist, werden die Karten vom*
Every time when a   round  over  is  are     the cards   by-the$_{weak}$

*Gewinner neu    gemischt und verteilt.*
winner     newly shuffled  and  dealt

'Every time when a round is over, the cards are shuffled and dealt anew by the winner.'

In (48), the definite description *the$_{weak}$  winner* does not refer to only one individual, but rather is intended to pick out, for each round, the winner of that round.

Many more examples of this kind will be discussed below when looking at cases of bridging that I eventually subsume under the general situational uniqueness analysis. For the moment, the point is simply to make clear that such covarying interpretations do exist for the weak article.

### 2.2.3.3 Apparent Anaphoric Uses of the Weak Article

For the most part, the literature suggests, explicitly or implicitly, that the weak article cannot be used anaphorically. The extent to which one accepts this as correct, however, depends on what exactly counts as an anaphoric use. There certainly are examples in which the weak article is felicitous in referring to an entity that was previously introduced linguistically:

(49) *Meyer hat sich   ein Haus mit  Garten gekauft. Im    Haus selber hält*
Meyer  has REFL a    house with yard    bought.  In-the house itself   stays

*sich   Meyer tagsüber        nur selten auf.   Er arbeitet gerne   im*
REFL Meyer  during the day only rarely  PART. He works    happily in-the

*Garten.*
yard.

'Meyer has bought a house with a yard. He rarely stays in the house in the daytime. He likes to work in the yard.'

<div align="right">(Hartmann 1978, p. 78)</div>

(50) *Der Gaustadvatnet ist ein See  in Norwegen. Am    See  liegt der Ort*
the Gaustadvatnet is  a   lake in Norway.    On-the lake lies  the town

*Korsvegen...*
Korsvegen

'The Gaustadvatnet is a lake in Norway. The town Korsvegen lies on the lake.'

<div align="right">(http://de.wikipedia.org/wiki/Gaustadvatnet)</div>

Since the strong article would also be felicitous here, these examples provide evidence that the two articles are not in complementary distribution. Even in environ-

ments that allow for both of them to occur, the possibility remains, however, that the two articles achieve the same effect in different ways. In other words, just because both articles can be used in the same context to yield (roughly) the same effect, this does not necessarily mean that they do so using exactly the same semantic means. In connection with configurations such as the one above, Hartmann makes the following interesting observation about the weak article in his discussion of *im Garten* ('in the$_{weak}$ yard') in (49):[19]

> [...] dieses Beispiel verweist (neben anderem) darauf, daß die Verwendung der Verschmelzung in der spezifischen [...] Interpretation oft auf weiter im Vortext erwähnte Größen zurückgreift sowie auf solche, die im angenommenen Sprecher-Hörer-Wissen liegen. Demgegenüber scheint die Verwendung der Artikelform auf näher im Vortext Genanntes sich zu beziehen, das dazu unmittelbar über den unbestimmten Artikel in den Text eingeführt werden muß [...].
>
> [...] this example (among others) shows that the use of the contracted form [i.e., the weak article; FS] in the specific [...] interpretation often reaches back to entities that were mentioned in the not immediately preceding, but earlier parts of the preceding text, as well as those that are part of the assumed speaker-hearer knowledge. The use of the article form [i.e., the strong article; FS], on the other hand, seems to relate to things mentioned in the more immediately preceding text, which furthermore have to be introduced directly by the indefinite article [...]
>
> (Hartmann 1978, p. 78)

Parallel examples can also be construed for covarying uses of the weak article, as in the following variation of (49), where the weak article is perfectly acceptable.

(51)  *Jeder Mann, der  ein Haus mit  Garten gekauft hat und die meiste Zeit zu*
       Every man    that a   house with yard    bought  has and the most    time at

       *Hause verbringt, arbeitet viel   im          / in dem     Garten.*
       home  spends     works    much in-the$_{weak}$  / in the$_{strong}$  yard
       'Every man that bought a house with a yard and spends most of his time at

       home works a lot in the yard.

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[19]Hartmann does not comment on *im Haus* ('in the$_{weak}$ house') in (49), which does not fit the characterization of *im Garten* in the quotation given here. Note, however, that *im Haus* is further modified by *selber* ('itself'), which may well be relevant for the availability of the weak article here.

A similar phenomenon is also discussed by Ebert in connection with the following story, where an indefinite is first referred back to with a strong (D-) article, and then picked up anew by the weak (A-) article:

(52)  *Uun Olersem wenet iar   an fasker     me   sin wüf an  twaalew jongen.*
In     Olersem lived   once a   fisherman with his  wife and seven     children.

*Arken maaren ging **di**        **fasker**    auer bi Dunsem dik  an   do    ütj*
Every  morning went the$_{strong}$ fisherman over  to Dunsem  dike and then out

*uun't    heef     tu a   faskguarder, am        hurnfasker tu fangen. Een inj*
into-the tideland to the fish-gardens  in-order horn-fish    to catch    One night

*wiar **a**       **fasker**  am naachterstidj noch  äi   wäler aran...*
was   the$_{weak}$ fisherman at   night            still  not again home...

'In Olersem there once lived a fisherman with his wife and seven children. Every morning **the**$_{strong}$  fisherman went over to the Dunsem dike and then out into the tideland to the fish-gardens to catch horn-fish. One night **the**$_{weak}$ fisherman was still not back home at night...'

<div align="right">Fering (Ebert 1971a, p. 111-112))</div>

About this possibility of 'picking up a referent' with the weak article, Ebert writes that referents that have been introduced with an indefinite article can stand with the weak (A-) article

> 'if they become the central person or object in a narration and thereby function as unique referents with respect to the narrative situation. [...] A- and D-article for unique referents in a narration cannot change arbitrarily. If the referent was introduced with the indefinite article, at least the first re-occurrence must involve the D-article. After the referent has been marked as a unique referent in a given context by use of the A-article, the D-article can only refer back to an immediately preceding text referent.'                  (Ebert 1971a, p. 111-112)

The very same effect is also present in German, as shown in the following variation of Ebert's story:

(53)  *In Olersem lebte einmal ein Fischer   mit  seiner Frau und sieben Kindern.*
In Olersem  lived  once     a   fisherman with his    wife  and  seven  children.

*Jeden Nachmittag gingen die Dorfbewohner **zu dem**     **Fischer**, um*
Every afternoon    went   the village people  to  the$_{strong}$ fisherman PREP

*Fisch zu kaufen und den neuesten Tratsch auszutauschen.  Auch die*
fish   to buy    and the newest    gossip   exchange.       Also   the

*Dorfkneipe wurde **vom**      **Fischer** täglich mit  frischem Fisch*
village pub  was    by-the$_{weak}$ fisherman daily    with fresh      fish

*versorgt...*
supplied...

'In Olersem there once lived a fisherman with his wife and seven children.
Every afternoon, the village people went to **the**$_{strong}$  fisherman to buy fish
and to exchange the newest gossip.  The village pub also was supplied daily
with fresh fish by **the**$_{weak}$  fisherman.'

The role that the fisherman plays in these stories in discourse pragmatic terms
seems to be that of a topic, in the sense that he is the one that the story is about.[20]
The main point I want to make at this point, however, is that the distribution of the
two articles overlaps, in particular in the present cases where both articles can refer
to a referent previously introduced by an indefinite antecedent.

The previous examples provided evidence that the weak article can sometimes be
used in cases where a (potential) antecedent is present.  In all of these, the strong
article is possible as well, which is not surprising, given that its core use seems to
involve anaphoricity.  The one and only exception that I can see in this respect
concerns cases where the antecedent is a weak-article definite:

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[20]Here, a detailed comparison with the German D-series pronouns, which have been linked to
topicality by (Bosch, Katz and Umbach 2007), among others, seems to suggest itself. I will discuss
some connections with the pronominal realm in chapter 7, but a full investigation of this matter will
have to be left to future research. The apparent role of topicality for the contrast between the weak
and strong article may also suggest exploring connections with Centering Theory (Grosz et al. 1995).

(54) *Maria ist beim      Bürgermeister und beim      Landrat*
    Maria is  by-the$_{weak}$ mayor        and by-the$_{weak}$ county-executive

    *gewesen. Sie ist vom      / #von dem      Bürgermeister sehr freundlich*
    been     she is  by-the$_{weak}$ / by     the$_{strong}$ mayor       very friendly

    *empfangen worden.*
    welcomed   been
    'Maria went to see the mayor and the county-executive. She received a warm

    welcome from the mayor.'

(55) *Maria ist beim      Bürgermeister gewesen. Sie ist von ihm sehr*
    Maria is  by-the$_{weak}$ mayor        been     she is  by  him very

    *freundlich empfangen worden.*
    friendly     welcomed   been
    'Maria went to see the mayor. She received a warm welcome from him.'

The variation in (55), where a pronoun replaced the full definite, indicates that the configuration at hand allows for anaphoric dependencies, since *ihm* here is undoubtedly an anaphoric pronoun. Nonetheless, the strong article in the first example is not really appropriate.

Following again an observation by Ebert, however, it is worth noting that even this type of case requires the strong article if the NP used for the anaphoric description is not the same as the one used in the antecedent and furthermore not restrictive enough to pick out the relevant individual uniquely (Ebert 1971a, p. 110-111).

(56) *Maria ist beim      Bürgermeister und beim      Pfarrer gewesen. Sie ist*
    Maria is  by-the$_{weak}$ mayor        and by-the$_{weak}$ pastor been     she is

    *#vom      / von dem      Politiker sehr freundlich empfangen worden.*
    by-the$_{weak}$ / by  the$_{strong}$ politician very friendly     welcomed   been
    'Maria went to see the mayor and the pastor. She received a warm welcome

    from the politician.'

The difference between this case and the one above is that only the latter is necessarily anaphoric, while the former could simply involve two completely independent

weak-article definites that receive the same interpretation because they appear in the same context. We can then revise our generalization above slightly by saying that the strong article can always be used whenever the intended interpretation of a noun phrase can only be brought about by understanding it as anaphoric.

To sum up, our analyses of the two articles will have to allow for an overlap in distribution. Since the strong article is the one that generally receives an anaphoric interpretation, this dependence on an antecedent should be built directly into its meaning. The most promising approach for the weak article in these cases seems to be to ensure that its basic meaning, which we have seen to involve uniqueness, is formulated broadly enough to allow for limited compatibility with potential antecedents (namely if its uniqueness requirement is appropriately met), without actually making it directly dependent on such an antecedent. One important limitation in this respect is that the weak article never seems to be able to pick out a previously introduced referent if the NP-description does not match that of the antecedent.[21]

### 2.2.4 Bridging Uses of Definite Descriptions

In the previous sections, we have begun to look at anaphoric and uniqueness uses of definite descriptions in some more detail. With respect to the two German definite articles, we found a fairly neat correspondence between these two types of uses and the two articles: the strong article is generally used for anaphoric cases, whereas the weak article is used for situational uniqueness ones. In this section, I turn to the last major class of uses of definite descriptions from Hawkins' classification, namely that of *associative anaphora* (Hawkins 1978) or bridging (Clark 1975). Bridging uses of definite descriptions are particularly interesting in terms of understanding how definites relate to the context they are used in, as they involve a fairly indirect

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[21]See also Ebert's (1971a, pp. 107-109) discussion of these and other kinds of uses that require the strong article in Fering.

relationship to individuals and events that have been talked about in the preceding discourse. Recall the two examples we discussed earlier.

(6)  a. John bought a book today.

  b. The author is French.

(7)  a. John was driving down the street.

  b. The steering wheel was cold.

The definite description *the author* is intended to pick out the author of the previously mentioned book, and *the steering wheel* is clearly understood to be the steering wheel of the car that John is said to have bought in the first sentence. But how do these interpretations come about? In line with the general attempt of providing a unified theoretical account of all uses of definite descriptions, proponents of both of the main theoretical analyses of definites have tried to capture these cases in terms of their general approach. As mentioned in section 2.2.1, from the perspective of a dynamic, familiarity-based approach, it is tempting to point out that the indefinite in the first sentence (*a book* and *a new car*, respectively) provides an antecedent of sorts, albeit a more indirect one than in the usual anaphoric uses of definites. This line of thinking was already suggested by Heim (1982), who proposed to capture cases of bridging as a type of accommodation, which is made available by the presence of a related discourse referent, and later work has elaborated variants of this idea. The challenge for a take on bridging along these lines is to provide an account of what types of antecedents allow for bridging and how exactly the allegedly anaphoric definites relate back to them.

Situational uniqueness accounts also might see bridging as a particular instantiation of their general approach to definites, namely by saying that if we are talking about a situation that contains a car, that situation will (at least typically) include a unique steering wheel. In recent work, for example, Lynsey Wolter has discussed cases

of bridging in situation semantic terms, specifically in connection with bridging uses of English demonstrative descriptions (Wolter 2006c, Wolter 2006a). An analogous possibility (though not framed in a situation semantics) was already considered by Hawkins (1978), who observed many similarities between his larger situation uses and cases of bridging (or 'associative anaphora', as he calls them), but decided against subsuming the latter under the former, because he recognized the broader variation within the latter class:

> [...] despite these overwhelming similarities between larger situation uses and associative anaphoric uses of *the* we shall continue to treat them as distinct on account of two differences. First of all, the trigger is different in the two cases, as we have seen. **Second, the range of association sets seems to exceed in number and variety the larger situation sets** [emphasis added, FS]. For example, both *a country* and *a book* trigger a number of associations [such as, e.g., *the prime minister*, *the author*; FS], but whereas these same associates are triggered within a country, there is no corresponding book-situation which permits a situational use of a first-mention *the* with these associates.

> (Hawkins 1978, p. 127)

For a good number of cases, a uniqueness-based account to bridging thus seems promising, but the problem raised by Hawkins in the quote above has to be addressed.

A full theoretical account of definite descriptions will have to tell a good story about bridging What I aim to show here, and, in more detail, in the analyses in the following chapters, is that we have to distinguish two classes of bridging, which involve different ways of relating to the context. Looking at cases of bridging involving the two German articles reveals what type of bridging we are looking at. Given the other uses of the two articles, we also get a clear picture of how 'bridges' in the two different cases are built, i.e., how the bridging definites relate to the context they occur in. It probably is no great surprise to the reader at this point that bridging with the weak article will be argued to involve situational uniqueness, whereas bridging with the strong article can be best understood as involving an anaphoric relation. But

first, we need to establish the empirical grounds for distinguishing different types of bridging with the two German articles.

## 2.2.4.1 Bridging with the German Articles

It is well known that the weak article in the German dialects can be used for certain cases of bridging. For example, Ebert provides examples such as the following in her dissertation, which she discusses under the label of 'typically associated' things ('typischerweise Mitgegebenes'):

(57)  *Wi foon   a    sark    uun a   maden faan't taarep. A       törem stän  wat*
      We found the church in    the middle of the village   the$_{weak}$ tower  stood a little

      *skiaf.*
      crooked

      'We found the church in the middle of the village. The tower was a little crooked.'

                                                        Fering (Ebert 1971a, 118)

To my knowledge, it has not been noted so far, however, that there also are cases of bridging that are expressed with the strong article. So, while there are cases of what I will call 'part-whole bridging', such as in (58), which are parallel to Ebert's example (57) and are expressed with the weak article, there also are examples like (59), where the relevant definite description (*the author*) appears with the strong article.

(58)  **Der Kühlschrank** *war so groß, dass der Kürbis    problemlos*
      The   fridge              was so big    that the pumpkin without a problem

      **im**       / **#in dem**     **Gemüsefach** *untergebracht werden konnte.*
      in-the$_{weak}$ / in      the$_{strong}$ crisper        stowed            be        could

      'The fridge was so big that the pumpkin could easily be stowed in the crisper.'

(59) **_Das Theaterstück_** _missfiel    dem Kritiker so sehr, dass er in seiner_
The   play          displeased the   critic     so  much that  he in  his

_Besprechung kein gutes Haar_ **#am**      / **an dem**     **Autor** _ließ._
review         no    good  hair  on-the$_{weak}$ / on  the$_{strong}$ author  left
'The play displeased the critic so much that he tore the author to pieces in
his review.'

The contrast between these two cases is surprising from the point of view of the
existing literature, which aims for a unified account of bridging. The crucial question,
of course, is what exactly it is about these two examples that makes the difference
in terms of the choice of article, and, ultimately, what types of bridging classes we
have to distinguish. Before turning to that question in more detail, however, we also
have to worry about whether the contrast between the two examples in (58) and (59)
is a general one, i.e. one that can be replicated across examples and be confirmed
systematically by a larger number of speakers. This is of particular concern here,
because judgments about article choice in the bridging cases can be especially subtle.
To address these concerns, a questionnaire study was carried out, which I will report
in the following section.

### 2.2.4.2   A Questionnaire Study on the Bridging Contrast
**Methods and Materials**

The starting point for the design of the experiment was the intuitively plausible
hypothesis that what likely is crucial for the bridging cases with the weak article
is the situational relationship between the bridged definite and its antecedent, in
particular that they require a relationship of the latter containing the former. To
generate a pattern that would test for this effect while minimizing variability in the
relationships involved to avoid other factors from entering the picture, the following
two pre-theoretical categories were used to construct the experimental materials:

- (58): **Part-Whole** relationship (fridge - crisper, house - living room, bike-bike handle)

- (59): **Producer-Product** relationship (author - play, painter - painting, etc.)

The category for examples like (58) above involved an entity that can be considered a 'whole' as a bridging antecedent (e.g., the fridge in (58)) and a part of that whole as the bridged definite (e.g., the crisper in (58)). In addition to 'fridge' and 'crisper' in (58), examples included pairs like 'house'-'living room', 'bike-bike handle', and 'train compartment'-'window'. The full set of part-whole sentences used in the questionnaire is provided in table 2.4.

The category for examples like (59) involved the relationship between a product (a play) and its producer (the author), which crucially did not stand in the same situational relationship as parts and wholes. Other example pairs from the experimental materials included 'painting'-'painter', 'symphony'-'composer', and 'movie'-'director'. The full set of producer-product sentences used in the questionnaire is provided in table 2.5.

I should stress that the producer-product class is not claimed to be the theoretically relevant category here. It remains to be seen what range of cases of bridging appear with the strong article. The particular class used here was chosen as it ensured a clear contrast with the part-whole cases on the relevant dimension and allowed for a set of examples involving highly similar relationships between the relevant NPs to avoid potential further relevant factors from interfering. A theoretical analysis of bridging cases with the strong article will be developed in chapter 6.

The difference in terms of the situational relationship between the two individuals involved is fairly straightforward: when considering wholes and their parts, it is clear that there is a containment relationship between the two, which in turn ensures that whenever we are looking at a situation that contains the whole, it will also contain the part. This is not the case for the relationship between products and their producers.

a. *Das Zugabteil war angenehm eingerichtet und am / an dem Fenster gab es sogar Vorhänge.*
'The train compartment was pleasantly decorated and on the$_{weak/strong}$ window there even were curtains.'

b. *Die Armbanduhr war äußerst wertvoll, da am / an dem Sekundenzeiger ein winziger Diamant angebracht war.*
'The watch was extremely valuable since a small diamond was mounted on the$_{weak/strong}$ second hand.'

c. *Das Auto wurde von der Polizei angehalten, da am / an dem Nummernschild nicht zu erkennen war, ob der TÜV abgelaufen war.*
'The car was stopped by the police since one could not discern from the$_{weak/strong}$ license plate whether the inspection sticker had expired.'

d. *Maria mochte Daniels Mantel sehr, vor allem weil am / an dem Kragen ein Muster aufgestickt war.*
'Maria liked Daniel's coat a lot, especially because a pattern was stitched onto the$_{weak/strong}$ collar.'

e. *Das Manuskript gefiel dem Lektor relativ gut, aber es störte ihn, dass im / in dem Schlussteil keine Zusammenfassung enthalten war.*
'The manuscript pleased the lector quite a bit, but it disturbed him that there was no summary in the$_{weak/strong}$ conclusion.'

f. *Nachdem Thomas das Boot gekauft hat, hat er sofort die Fahne seines Segelclubs am / an dem Mast aufgehängt.*
'After Thomas bought the boat he immediately hung the flag of his sailing club on the$_{weak/strong}$ mast.'

g. *Klaus war von seinem neuen Büro begeistert, weil im / in dem Aktenschrank Platz für alle seine Unterlagen war.*
'Klaus was excited about his new office because there was room for all of his papers in the$_{weak/strong}$ filing cabinet.'

h. *Der Kühlschrank war so groß, dass der Kürbis problemlos im / in dem Gemüsefach untergebracht werden konnte.*
'The fridge was so large that the pumpkin could be stowed without a problem in the$_{weak/strong}$ crisper.'

i. *Gabis Laptop war noch recht gut in Schuss, nur am / an dem Monitor gab es ein paar Kratzer.*
'Gabi's laptop was still in pretty good shape, except for a few scratches on the$_{weak/strong}$ monitor.'

j. *Karins neues Haus war so groß, dass im / in dem Wohnzimmer bequem 100 Leute Platz hatten.*
'Karin's new house was so big that 100 people had room in the$_{weak/strong}$ living room comfortably.'

k. *Das Fahrrad, das Peter sich gestern gekauft hat, hat am / an dem Lenker eine große Hupe anstelle einer Klingel.*
'The bike that Peter bought yesterday has a large horn on the$_{weak/strong}$ handle bar in place of a bell.'

l. *Nachdem Axel das Ölbild gekauft hatte, entfernte er als erstes die Schrammen am / an dem Rahmen.*
'After Axel the bought the oil painting he removed the scratch on the$_{weak/strong}$ frame first thing.'

**Table 2.4.** Part-Whole Questionnaire Materials

a. *Der Dirigent war äußerst enttäuscht von der Sinfonie und sagte deshalb seinen Besuch beim / bei dem Komponisten ab.*
'The director was very disappointed by the symphony and therefore canceled his visit with the$_{weak/strong}$ composer.'

b. *Paul fand das Gedicht in der Zeitschrift sehr schön, obwohl er sonst nicht sonderlich viel vom / von dem Dichter hielt.*
'Paul thought the poem in the magazine was beautiful, although he did not think very highly of the$_{weak/strong}$ poet otherwise.'

c. *Peter will unbedingt den neuen Film im Kino an der Ecke sehen, weil er vom / von dem Regisseur schon viele gute Filme gesehen hat.*
'Peter definitely wants to see the new film at the theater on the corner, because he has seen many good movies by the$_{weak/strong}$ director before.'

d. *Der Sammler war von dem Gemälde so beeindruckt, dass er beschloss, beim / bei dem Maler im Studio anzurufen.*
'The collector was so impressed by the painting that he decided to call the$_{weak/strong}$ painter in the studio.'

e. *Das Foto auf der Titelseite des Magazins gefiel Heinz ausgezeichnet, aber vom / von dem Fotografen hatte er noch nie etwas gehört.*
'Heinz really liked the photo on the title page of the magazine, but he had never heard of the$_{weak/strong}$ photographer before.'

f. *Das Theaterstück missfiel dem Kritiker so sehr, dass er in seiner Besprechung kein gutes Haar am / an dem Autor ließ.*
'The critic disapproved of the play so thoroughly that he pulled the$_{weak/strong}$ author to pieces in his review.'

**Table 2.5.** Producer-Product Questionnaire Materials

A situation containing a book does not generally contain the book's author. The full theoretical significance of this difference will be explored in detail in the following chapters, but for now, I will leave the characterization at this intuitive level.

The two sets of sentences in the categories just described constituted two sub-experiments, one with 12 sentences (of the part-whole type; see table 2.4), the other with 6 sentences (of the producer-product type; see table 2.5). The independent variable was the type of the article, i.e. whether the critical bridged definite appeared with the weak or the strong article. Two counterbalanced lists were created for each of the sub-experiments, each containing half of the relevant items in the strong-article version and the other half in the weak-article version. Subjects thus saw all of the experimental sentences, but only saw each sentence in one of the two experimental conditions. The task that subjects were asked to carry out was to judge each of the sentences on a scale from 1 (best) to 5 (worst), based on whether they considered it a good German sentence, according to their spontaneous intuition.[22] In addition to the

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[22]The full instructions to the subjects read as follows:

Für das folgenden Experiment bitten wir Sie, etwa 70 Sätze zu lesen und nach jedem Satz zu beurteilen, ob dieser Satz ihrem Gefühl nach ein guter deutscher Satz ist, oder nicht. Es gibt dabei keine falsche oder richtige Antwort. Sie werden einen Satz nach dem anderen sehen. Die Sätze stehen in keinem Bezug zueinander. Überlegen Sie nicht zu lange, wir sind an Ihrer spontanen Reaktion interessiert - daran, ob der Satz beim ersten Lesen gut klingt oder seltsam. Bewerten Sie den Satz dann per Mausklick auf einer Skala von eins (sehr gut) bis fünf (nicht gut). Vor dem eigentlichen Experiment zeigen wir Ihnen vier Sätze zum eingewöhnen. Am Ende des Experiments haben Sie Gelegenheit uns Kommentare, Eindrücke und Kritik zu hinterlassen.

(For the following experiment, we ask you to read around 70 sentences and to judge after reading each sentence whether or not it is a good German sentence, according to your intuition. In doing so, there is no wrong or right answer. You will see one sentence after another. The sentences are not related to each other in any way. Don't think too long about your judgment, as we are interested in your spontaneous reaction - whether the sentence sound good or weird upon first reading it. You will judge the sentence on a scale from one (very good) to five (not good) by using the mouse button. Before the actual experiment, we will show you four sentences to get used to the setup. At the end of the experiment, you will have the opportunity to leave comments, impressions, and criticisms for us.)

experimental items discussed here, there were sentences from various other studies as well as a number of filler sentences, yielding a total of 71 sentences.

The experiment was implemented on the world wide web using the WebExp2 experiment software. Subjects were recruited by email, and results are reported here for 28 native speakers of German that voluntarily participated in the experiment.

**Results**

The results of the experiment are summarized in Figure 2.1. They confirm the initial intuitive judgments for the two articles that were presented for (58) and (59) above. In the case of the Producer-Product cases, the sentences were judged to be better when presented with the strong article, compared to the weak article. In the part-whole bridging cases, on the other hand (represented by the gray line), the weak article yielded better judgments than the strong article.

The data for both of the experiments were analyzed using t-tests to test for statistical significance. For the producer-product case, the mean rating for the weak article was 1.98, compared to 1.51 for the strong article (a lower rating corresponded to a better judgment). This difference between the two articles was significant, as revealed by a t-test $(t_1(27) = 2.85, p < .01, t_2(5) = 3.10, p < .05)$.

In the part-whole sentences, the weak article, at a mean of 1.49, was judged better than the strong article, whose mean was 1.84. This effect was also significant $(t_1(27) = 3.42, p < .01, t_2(11) = 3.68, p < .01)$.

Although the two studies were designed as two separate sub-experiments, we can also compare them directly by looking at them as a $2 \times 2$ interaction design (bridging type $\times$ article type) with bridging type as a between item factor in the analysis by items. The corresponding ANOVA analysis revealed a significant interaction $(F_1(1, 27) = 12.34, p < .01, F_2(1, 16) = 22.89, p < .001)$. There were no significant main effects.
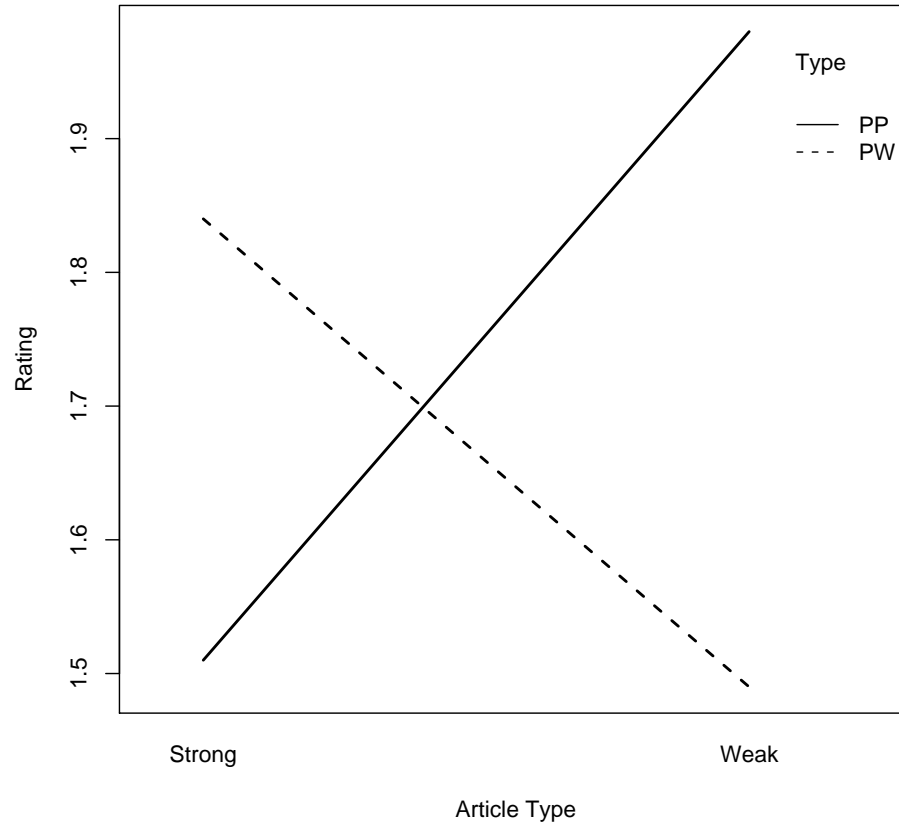
**Figure 2.1.** Mean Ratings for Part-Whole (PW) and Producer-Product (PP) Bridging with the Weak and Strong Articles

**Discussion**

The results from the questionnaire study clearly confirm the intuitions about the initial examples and establish that there are different types of bridging that go along with the use of different articles. Of particular interest is the fact that there is a statistically significant interaction between the two factors (bridging type and article type), because this rules out any potential appeal to a general preference of one article form over the other. The interaction shows us that article preference depends on bridging type. Our analysis both of the two articles and of the different types of bridging involved thus will have to account for the way these factors interact.

Furthermore, we need to get a broader picture on what exactly distinguishes different types of bridging, and whether there are further factors that need to be taken into consideration in order to arrive at a more exhaustive classification. All we have done so far is to establish that there are different types that need to be distinguished.

Let me briefly address a methodological worry that some readers may be concerned about. While the differences between the articles in each of the two studies are undeniably of statistical significance, the numerical size of the effect is fairly small, at a difference of .35 in the part-whole study and one of .47 in the producer-product study, within a scale of 5 full points. Is this something we should worry about? In connection with this, it is important to mention, first of all, that various sentences from other studies involved far stronger deviations from the norm, and received accordingly high (i.e., bad) mean ratings. For example, the following sentence, involving a basically ungrammatical fronting of a DP headed by *lauter* 'several', received a mean rating of 4.8:

(60)    *Johannes war nicht so sehr   auf    den Preis bedacht, weil     lauter*
         Johannes   was   not     so   much about the   price   anxious   because various

         *Ausgaben die Firma     übernehmen würde.*
         expenses    the company assume       would
                                 From a sub-experiment by Jan Anderssen

The effect of choosing one article over the other is on an entirely different level of subtlety, and since subjects will adjust their use of the scale to the overall range of sentences they see during the entire experiment, the range of the scale used for the sentences discussed here will have been shifted to the lower (better) end. Furthermore, recall that the overall goodness of the sentences was to be judged. The subtle difference between using the strong vs. the weak article could sometimes have been overshadowed by other properties of the sentences.

Finally, there is a more general question concerning the interpretation of results from rating studies such as the one presented here. Even if the results of such a study

exhibit a large numeric difference between different conditions, this by itself doesn't tell us what the status of that difference is. In particular, we don't know whether the deviance of the 'bad' form is due to ungrammaticality, or rather due to other factors (e.g., related to processing difficulty). So whatever difference we find, it's part of the theoretical discussion to decide where in the theory to place the hypothesized source of the result. What is important for current purposes is that the intuitively subtle contrast between the two forms could be shown to be quite stable across sentences and speakers. Since it is easy to 'correct' the inappropriate form in the deviant cases, we don't expect the judgments for the overall sentences to be drastically different. But we are nonetheless in a position to believe that there is such a contrast between the two articles, and we will have to account for it as part of our overall analysis of the two forms.

On the other hand, it should also be mentioned that it would be desirable to end up with a theoretical account of the bridging contrast that actually leads us to expect the degree of subtlety found for these data. If, for example, different cases of bridging with the different articles involve different methods for accommodating additional content in order to arrive at a sensible interpretation, then it might be expected that there are different amounts of difficulty in arriving at such an interpretation depending on which method is used and what the exact context is.

**Same Contrast in Fering**

Further support for the existence of the contrast between the different cases of bridging with respect to the two articles can be found by reconsidering data from Fering. As I mentioned above, Ebert (1971a) discusses bridging cases of the part-whole kind, such as (57), repeated below. However, the other type of bridging is distinguished by the Fering articles as well, as shown in (61), which was provided by Ebert (p.c.) as a spontaneous translation of the corresponding German sentence.

Note that the standard German version of this sentence provides no overt clue as to what article is involved, since the relevant definite ('the painter') does not occur after a preposition.

(57)  *Wi foon  a   sark   uun a   maden faan't taarep.  A      törem stän  wat*
      We found the church in    the middle of the village   the$_{weak}$ tower  stood a little

      *skiaf.*
      crooked
      'We found the church in the middle of the village.  The tower was a little crooked.'

<div align="right">Fering (Ebert 1971a, 118)</div>

(61)  *Peetji hee uun Hamboreg an bilj     keeft.  DI      mooler hee ham an*
      Peter  has in    Hamburg  a   painting bought The$_{strong}$ painter has him  a

      *guden pris  maaget.*
      good    price made.
      'Peter bought a painting in Hamburg. The painter made him a good deal.'

<div align="right">Fering (Karen Ebert, p.c.)</div>

Unfortunately, I do not currently know what the status of variations of these examples with respect to other article forms is, since I only have one version of each sentence that was provided as the most adequate translation. Although it would be desirable to test this phenomenon more systematically in Fering as well, the fact that the same contrast appears in a spontaneous translation of the corresponding German example further supports the idea that there is a general difference between the cases of bridging under consideration, which is revealed by the choice of definite articles in languages that distinguish between the two types of articles that are being investigated here.

**Same Contrast with Covariation**

Given the general importance of covarying interpretations of definite descriptions noted above, it is important to mention that the two types of bridging are available in constructions that yield covarying interpretations of the bridged definites as well.

(62) *Jeder, der einen Roman gekauft hat, hatte schon einmal eine*
Everyone that a novel bought has had already once a

*Kurzgeschichte* ***von dem*** ***Autor*** *gelesen.*
short story by the$_{strong}$ author read

'Everyone that bought a novel had already once read a short story by the author.'

(63) *Jeder Student, der ein Auto parkte, brachte einen Parkschein* ***am***
Every student that a car parked attached a parking-pass on-the$_{weak}$

***Rückspiegel*** *an.*
rear view mirror PART

'Every student that parked a car attached a parking pass to the rearview mirror.'

In (62), the bridged definite with the strong article, *von dem Autor* 'by the author', is understood as the author of the novel that is introduced in the relative clause. Therefore, this universal donkey sentence claims that everyone that bought a novel had already once read a short story that was written by the author of the novel that they bought. To the extent to which people bought novels by different authors, this of course means that we are talking about corresponding different short stories by these different authors, i.e. we get a covarying interpretation of the bridged definite with the strong article.

Similarly, the sentence in (63) involves a bridged definite with the weak article, *am Rückspiegel* 'on-the rearview mirror', which is understood as belonging to whatever car the student in question parked. So again, since different students will plausibly have parked different cars, we get a covarying interpretation of 'the rearview mirror',

which can be paraphrased as 'the rearview mirror of the car that the student in question parked.'

While I will not turn to a detailed discussion of how to formally analyze these cases until the following chapters, it is important to keep in mind right from the beginning that however we choose to analyze the way these different bridging definites relate back to the first part of the sentence, this analysis will have to be able to include quantificational cases with covarying interpretations of the relevant definites. Since the two types of definites seem to differ in how they relate to their (quantificational or non-quantificational) context, this means that we may well have to provide more than one way of implementing this covariational relationship.

### 2.2.4.3 Summary

We have established that there are robustly different types of bridging that influence the choice of article in standard German and apparently also in Fering. I will turn to the intriguing question of what exactly the difference between the two types of bridging is and how best to analyze it in connection with what we already know about the two types of articles in the following chapters. As was already indicated at the beginning of the section, I will argue that bridging with the strong article indeed involves an anaphoric dependency on the bridging antecedent, and I will therefore use the label 'relational anaphora' for these cases. In the case of the weak article, I will argue that bridging cases should be analyzed in terms of the very same situational uniqueness account that is appropriate for other uses of the weak article.

### 2.2.5 Other Uses of the Two Definite Articles

### 2.2.5.1 Proper Names

In this last section concerned with the uses of the weak and strong definite articles, I present a number of other uses that will not be analyzed in detail here, but should be mentioned nonetheless. Given the connection of the weak article to uniqueness, it

comes as no surprise that in cases where a proper name can appear with a definite article, the weak article is used, since proper names by definition pick out a unique individual. An example is given in (64). Ebert provides (65) as an example from Fering where the weak article occurs with a proper name, in this case the name of a country.

(64)  *Ich müsste mal  wieder beim   Hans vorbeischauen.*
      I    must    once again   by-the Hans  stop by
      'I should stop by Hans's place again some time.'                    (German)

(65)  A Türkäi ('The (country of) Turkey')              (Fering, Ebert 1971a, p. 71)

The theoretical role of occurrences of a definite article with proper names is somewhat unclear in the literature (Heim 1991). Unless one assumes a theory of proper names that takes them to be definite descriptions with a covert article (as has been done, most recently, by Elbourne 2005), it is an open question how the meaning of proper names with definite articles is composed. Since the semantics of proper names is not of central concern to us here, I will not have much to say on the issue.

### 2.2.5.2  Kind Reference

A further important use of the weak article is for referring to kinds in the sense of Carlson (1977). The following sentence, for example, makes a statement not about a particular zebra, but about the kind zebra.

(66)  *Am    / #an dem Zebra kann man sehen, dass die Natur symmetrisch ist.*
      on-the / on   the zebra can   one   see     that the nature symmetrical   is
      'The zebra shows us that nature is symmetrical.'[23]

---

[23]This type of example, first pointed out to me by Greg Carlson, is due to Angelika Kratzer.

The same also holds in Fering, but there the further possibility of using a weak article in the plural exists as well.[24]

(67)  a.  *A    / *di   waalfask as bal   ütjstörwen.*
          the_A / the_D whales    is  soon gone extinct
          'The whale will soon be extinct.'

     b.  *A    / *dön waalfasker sterew ütj.*
          the_A / the_D  whales       are going extinct
          'The whales are going extinct.'

(Fering, Karen Ebert, p.c.)

Plural definites can refer to kinds in other languages as well, e.g., in Romance (Krifka, Pelletier, Carlson, ter Meulen, Chierchia and Link 1995, Chierchia 1998), and it is not too surprising that it is the weak article that is used for these cases. Assuming a view of kinds along the lines of Carlson (1977), kind referring terms are very much like proper names, which also require the weak article, as we saw above.[25]

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[24]Remember that the contrast between the weak and strong articles in German only exists in the singular.

[25]Interestingly, Fering also has bare noun phrases, which are used in various other generic statements. For example, in the following 'characterizing sentences' (following Krifka et al.'s (1995) terminology), only the bare noun phrase has the generic reading.

(1)  a.  *(#A)   Roozen san emfintelk jin    froost.*
          (the_A)  roses    are sensitive against frost
          'Roses are sensitive to frost.'
     b.  *(#A)   Eerdaapler san sünj.*
          (the_A)  potatoes   are healthy
          'Potatoes are healthy.'

Fering (Karen Ebert, p.c.)

According to Ebert (p.c.), (1a) would be felicitous with the weak article if a gardener talked about his roses, which are known to exist in the context. And (1b) only makes sense without the weak article, because it is hard to think of a context where a specific contextually given set of potatoes would be said to be healthy.

This contrast between the bare plurals and the ones with the weak article might bear on the issue of whether there is a unified analysis of kind reference and characterizing sentences, as proposed by Carlson (1977), or whether they need to be analyzed separately, with the latter involving some type of generic quantification, as proposed by Wilkinson (1991) and Gerstner-Link and Krifka (1993). The fact that Fering seems to make a formal distinction between kind referring uses, which use the

66

### 2.2.5.3 Nominalizations

One other use of the weak article should that at least be mentioned here is that of deverbal nominalizations, which require the weak article, as shown in (68).

(68) *Hans hat sich    beim    / #bei dem Schwimmen verletzt.*
Hans  has REFL by-the / by    the  swimming    hurt
'Hans hurt himself during his swimming.'

One possible way of looking at this case is to say that these nominalized verbs refer to kinds of activities, and thus are to be treated along the lines of kind reference in general.

### 2.2.5.4 More on Relative Clauses

As we already saw in section 2.1, only the strong article can be used when the noun phrase complement of the determiner contains a restrictive relative clause.

(18) *Fritz ist jetzt \*im        / in dem      Haus, das er sich    letztes Jahr*
Fritz is  now in-the$_{weak}$ / in the$_{strong}$ house that he REFL last    year
*gebaut hat.*
built    has
'Fritz is now in the house that he built last year.'

(Hartmann 1978, p. 77)

Hawkins identifies a specific type of use of definite descriptions with relative clauses inside of their NP-complements, which he calls *Establishing Relative Clauses* (Hawkins 1978, p. 131-138). An example is given in (69a). Establishing Relative Clauses are unusual in that they do not require their referent to be familiar (or identifiable, in Hawkins' terms). Rather, it seems as if their referent is introduced by the relative clause, as witnessed by the possibility of paraphrasing them with an indefinite, as in (69b) and (69c).

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weak article, and characterizing sentences, could be taken as an argument in favor of an ambiguity account.

(69)   A: What's wrong with Bill?

    a.  Oh, the women he went out with last night was nasty to him.

    b.  Oh, he went out with a woman last night, and she/the woman was nasty to him.

    c.  Oh, he went out with a woman last night who was nasty to him.

<div align="right">(Hawkins 1978, p. 131)</div>

(70)   *Sie ist #vom     / von dem    Mann, mit dem  sie gestern*
       She is  by-the$_{weak}$ / by  the$_{strong}$ man    with whom she yesterday

       *ausgegangen ist, versetzt  worden.*
       went out     is  stood up been
       'She was stood up by the man that she went out with yesterday.'

Given the general inability of the weak article to appear with restrictive relative clauses, it is not too surprising that only the strong article can be used in these cases, as shown in (70). What is interesting about this case, however, is that generally, strong-article definites seem to require a linguistic antecedent. Establishing Relatives seem to provide a counter-example to this generalization.

While restrictive relative clauses only allow for the strong article, non-restrictive ones can appear both with the weak and the strong article:[26]

(71)   *Vom      Bürgermeister, der  übrigens   lange in Berlin gewohnt hat,*
       from-the$_{weak}$ mayor       who by the way long  in Berlin  lived    has

       *habe ich einen Blumenstrauss zum    Geburtstag bekommen.*
       have I   a    flower bouquet to-the$_{weak}$ birthday    got
       'From the mayor, who, by the way, lived in Berlin for a long time, I got a flower bouquet for my birthday.'

---

[26]*Übrigens* ('by the way') can only appear in non-restrictive relative clauses and thus provides a useful tool for ensuring this interpretation. As usual, the strong article in (72) requires that the teacher has been mentioned before in some form or other.

(72)   *Von dem*      *Lehrer, der übrigens*    *lange in Berlin gewohnt hat, habe ich*
      from the$_{strong}$ teacher who by the way long   in Berlin lived     has   have I

      *einen Blumenstrauss zum*      *Geburtstag bekommen.*
      a      flower bouquet to-the$_{weak}$ birthday     got
      'From the teacher, who, by the way, lived in Berlin for a long time, I got a

      flower bouquet for my birthday.'

Interestingly, this contrast also might shed some light on different types of uses of proper names. Proper names can combine with a definite article and a restrictive relative clause, even in English, if there is more than one individual with the same name that might be relevant for the discourse at hand:

(73)   The John that is from New York is very nice.

In line with the general pattern above, here the strong article is required again, despite the fact that generally the weak article is the one that is used with regular uses of proper names.

(74)   *#Vom*      */ Von dem*      *Hans, der in New York wohnt, habe ich schon*
      of-the$_{weak}$ / of     the$_{strong}$ Hans   that in New York lives    have I    PART

      *lange nichts   mehr gehört.*
      long   nothing more heard
      'I haven't heard from the Hans that lives in New York in forever.'

With non-restrictive relative clauses, on the other hand, only the weak article can be used:

(75)   *Vom*       *Hans, der übrigens*    *lange in Berlin gewohnt hat, habe ich*
      from-the$_{weak}$ Hans   who by the way long   in Berlin lived    has   have I

      *einen Blumenstrauss zum*      *Geburtstag bekommen.*
      a      flower bouquet to-the$_{weak}$ birthday     got
      'From Hans, who, by the way, lived in Berlin for a long time, I got a flower

      bouquet for my birthday.'

Note that in English, the definite article only appears in the first case, where German requires the strong article.

### 2.2.5.5 Clausal NP complements and Nominal Modifiers

The two final types of uses to be mentioned, both of which are classified by Hawkins as further cases of 'unfamiliar' uses of definite descriptions, do not seem to come with a clear and general preference for using one article over the other. First, there are noun phrases taking a clausal complement, such as *rumor* and *allegation*.

(76)    *Am*      */ An dem*     *Gerücht, dass der Bundeskanzler zurücktreten*
      on-the$_{weak}$ / on the$_{strong}$ rumor    that the chancellor      resign

      *will, ist wohl nichts dran.*
      wants is PART nothing on
      'The rumor that the chancellor wants to resign apparently is baseless.'

(77)    *Zum*      */ zu dem*     *Vorwurf, dass der Bundeskanzler Steuern*
      to-the$_{weak}$ / to the$_{strong}$ allegation that the chancellor     taxes

      *hinterzogen hat, will ich mich nicht äußern.*
      evaded     has want I   REFL not    comment
      'I do not want to comment on the allegation that the chancellor has evaded taxes.'

As indicated, both of the article forms are generally acceptable in these types of examples, though the strong article is perhaps slightly better. It is possible, of course, that here, too, there are differences in use conditions for the two forms, but I will not explore this any further in the present context.

The second class of cases are what Hawkins calls Nominal Modifiers, such as *the color red*.

(78)    *Zur*      */Zu der Farbe*    *rot fällt mir*       *nichts ein.*
      to-the$_{weak}$ /   to the$_{strong}$ color red come to mind me    nothing PART
      'For the color red, nothing comes to mind.'

(79) *Beim    / Bei dem    Namen Ernst muss ich immer an einen dummen*
by-the$_{weak}$ / by the$_{strong}$ name   Ernst must I   always on a      stupid

*Witz denken.*
joke  think

'When I hear the name Ernst, I always have to think of a stupid joke.'

Here, again, both of the article forms are in principle acceptable, though in this case the weak article may be slightly better in general.

### 2.2.5.6   Weak Definites

The last class of definites I want to mention is that of Carlson et al.'s (2006) 'weak definites', illustrated in (80) [27]

(80)   John is reading the newspaper.

They show that there is a special interpretation for definites such as the one in (80), which lacks a uniqueness requirement. For this weak-definite interpretation to be available, certain structural and lexical properties have to be met, which therefore can be used as tests for identifying them. The first test involves ellipsis: with a weak definite, there is no requirement for the stores in (81a) that Bob and Mary went to to be the same. In (81b), on the other hand, Bob and Mary must have gone to the same desk. Weak definites furthermore generally require specific lexical items that 'govern' them, as shown in (82). The lexical identity of the noun itself also matters, as can be seen in (83), where *hospital*, but not *building*, can be part of a weak definite. Finally, modification generally makes the weak definite interpretation unavailable, as shown in (84).

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[27] A note on terminology: I will use *weak definite* only for the special type of definites discussed in this section, hence adopt Carlson et al.'s (2006) usage. When talking about the contracted form and the A-article, etc., in general, I will stick to the term *weak article*.

(81) **Ellipsis**

    a. Bob went to the store, and Mary did too. (different stores OK)

    b. Bob went to the desk, and Mary did too. (must be same desk)

(82) **Weak definites are governed by specific lexical items**

    a. Kenneth is at the store *vs.* behind the store.

    b. They took the crash victims to the hospital *vs.* past the hospital.

(83) **Lexical identity of noun matters**

    a. He went to the hospital *vs.* the building.

    b. You should see the doctor *vs.* the nurse.

(84) **Modification destroys weak definite reading reading**

    a. He went to the 5-story hospital.

    b. Fred went to the big store.

<div align="right">(Carlson et al. 2006)</div>

If the configurational conditions that make weak definite readings available are not met, a uniqueness implication is clearly present, as Carlson et al. (2006) show in a number of psycholinguistic experiments. The existence of weak definites *per se* therefore is not a general challenge to uniqueness accounts. Rather, a specific class of definites has been identified that will have to receive an analysis of its own.

With respect to the German definite articles, the weak definite readings are only available with the weak article.

(85)   a. *Maria ging zum   / #zu dem Supermarkt.*
        Maria went to-the / to   the   supermarket
        'Maria went to the supermarket.'

    b. *Fred hörte   sich   das Spiel im   / #in dem Radio an.*
        Fred listened REFL the game in-the / in   the   radio   PART
        'Fred listened to the game on the radio.'

The availability of the weak definite reading is dependent on the same sort of configurational factors as in English.

(86)  a.  i.  *Hans ist im     Kino,         und Maria auch.*
            Hans  is   in-the movie theater and  Maria  too
            'Hans is at the movie theater, and Maria is too.'

            (different movie theaters OK)

        ii.  *Hans ging zum    Schrank, und Maria auch.*
            Hans  went to-the closet       and  Maria  too
            'Hans went to the closet, and Maria did too.'

            (same closet only)

     b.  *Hans ist im     Kino          / hinterm    Kino.*
        Hans  is   in-the movie theater    behind-the movie theater
        'Hans is at the movie theater / behind the movie theater.'

     c.  *Hans ist im     Krankenhaus / im      Gebäude.*
        Hans  is   in-the hospital         in-the building
        'Hans is in the hospital / in the building.'

     d.  *Hans ist im      5-stöckigen Krankenhaus.*
        Hans  is   in-the 5-story      hospital
        'Hans is in the 5-story hospital.'

Acknowledging the existence of this class of weak definites has several implications for the present enterprise: first, we have to be careful to avoid potential weak definite readings when we are discussing the weak article, and should use the tests from Carlson et al. (2006) to ensure that we are not dealing with a weak definite. Secondly, we ultimately want to understand why the weak definite reading is only available with the weak article. One plausible approach to this could be to relate these cases to the kind-referring uses of the weak article mentioned above. I leave a further theoretical exploration of this class of definites for future research.

## 2.3 Main Generalizations and Issues

Having surveyed the various types of uses of the strong and weak articles, let us summarize the basic generalizations and state the main issues that analyses of these phenomena will face.

First of all, we have seen that the strong article is generally used anaphorically and that all anaphoric uses can be expressed by it. There were cases where the weak article also could be used to pick out an entity that was introduced by a previous linguistic expression, but these were limited and seemed to come about as a side-effect of its core meaning based on uniqueness.

The second major type of uses, namely the one involving situational uniqueness is generally expressed by the weak article. This could involve reference to individuals that were globally unique or to ones that were only unique within a restricted domain, e.g. within the domestic context of a family ($the_{weak}$ $dog$), a town ($the_{weak}$ $mayor$), or a country ($the_{weak}$ $prime$ $minister$). Generally, it is required that the discourse participants have mutually shared knowledge that uniqueness holds (in other words, that it is common ground, in the sense of Stalnaker). In any such cases, the strong article is not possible (in absence of a suitable antecedent). Since an indefinite can generally not be used appropriately in such a situation, either (Hawkins 1991, Heim 1991), use of the weak article becomes necessary for uniqueness uses. At the same time, as long as uniqueness holds, the weak article can be used, i.e. uniqueness is sufficient for the availability of the weak article.

One crucial question that these first two generalizations raise is how the role of the linguistic context and the non-linguistic context differ from one another. One might think it might not matter whether an individual (or a discourse referent for an individual) is present in the context because it is generally shared knowledge that it exists or because it has been explicitly mentioned in prior discourse. However, we have seen that the weak article is not generally able to pick up a linguistic antecedent,

whereas the strong article generally depends on such an antecedents. Thus, we have to distinguish between a referent having been introduced linguistically and a unique individual being available for reference simply because it is common ground that there is only one such individual (relative to the relevant domain). Cases where the weak article can pick out an individual that was linguistically introduced, which might seem like a counter-example to this, arguably do not involve an anaphoric connection between the relevant indefinite and the weak article definite, but rather work because the referent of the definite is unique in the appropriate way.

With respect to the cases involving bridging or associative anaphora, the questionnaire study reported in section 2.2.4.2 has shown us that different types of bridging require different articles. I suggested that the weak-article bridging cases involve a relationship of situational containment, based on the part-whole cases used in the questionnaire, whereas the strong article cases involve a special type of an anaphoric dependency. As we gain a more precise perspective on the analysis of the two articles, we will want to spell out in more detail how the bridging uses relate to the general meaning of the articles, and this will be done in the following chapters.

Another important generalization from the data and discussion of this chapter is that whatever effects and contrasts we find for the two definite articles based on the discourse and utterance context, we also find in quantificational environments involving covarying interpretations of definites. This means that whatever interpretation we assign to the two articles to account for the differences in discourse anaphoric and situational uniqueness uses will also have to extend to the covarying cases. Understanding the mechanics of covarying interpretations of the two articles will thus be important for our understanding of the mechanisms of covariation available in natural language more generally.

Taking into consideration the other types of uses that we have seen, a further generalization, already pointed out by Hartmann (1978), is that the strong article always

receives an interpretation that results in a claim being made about individuals that meet the description. This is obviously the case in the anaphoric and demonstrative uses. But it is also the case, if more indirectly, in the covarying anaphoric cases: while there is no one individual being referred to by the whole utterance, for each of the individuals that we are quantifying over, the definite picks out exactly one individual for the definite. The weak article, on the other hand, has a number of uses that do not involve reference to particular individuals. Most obviously, this is the case for idioms, where no reference is being made at all. But it is also the case in the generic and kind-referring uses (although these perhaps can be analyzed as being about individuals of a special type, namely kinds (Carlson 1977)).

With respect to existing theoretical proposals for analyzing definite descriptions, we have seen that they generally attempt to provide a unified analysis of all of their uses. Languages that have more than one form corresponding to the English definite article *the* call for a more differentiated perspective. If we are interested in the role that definite descriptions play in natural language in general, looking at such languages will be highly informative, as they can provide crucial insights into the types of distinctions that are relevant for definites in natural language.

The main challenge we face is to come up with an adequate analysis for each of the articles that accounts for all of its uses. Furthermore, the overall account also should help us understand the partial overlap in distribution of the two forms, as well as the subtlety in the contrast between them in certain areas (e.g., in the bridging data). The most straightforward approach to this task, given the fairly close correspondence between the core data for each of the articles and the two predominant accounts, is to formulate an anaphoricity-based account for the strong article and a uniqueness account for the weak article. However, in spelling out a specific and precise version of such accounts, we have to take into consideration that existing proposals typically aim to account for all uses of definites - including the ones most straightforwardly handled

by the respective competing account - and thus seem poised to over-generate for our purposes. The challenge thus will be to formulate accounts based on uniqueness and anaphoricity that predict exactly the right range of uses that we find for the corresponding articles.

One crucial ingredient for the analysis of the weak article will be a suitable mechanism of domain restriction. Chapter 3 will introduce a situation semantics and argue for a situation-based approach to domain restriction, which will be put to use in the analysis of the weak article in chapters 4 and 5. Modeling the anaphoricity of the strong article calls for some type of dynamic binding mechanism, as will be discussed in more detail in chapter 6.

As I already stressed before, incorporating the analysis of covarying interpretations into the respective analyses of the two German articles is a further crucial task ahead of us. The existence of two distinct mechanisms for bringing these about that is suggested by the German data is highly relevant to ongoing debates about the proper analysis of donkey sentences. While much recent work on donkey pronouns has tried to provide an account in terms of covert definite descriptions, which are assumed to involve situational uniqueness (Berman 1987, Heim 1990, Elbourne 2005), the existence of strong-article definites that seem to require an explicitly anaphoric treatment in the tradition of dynamic semantics (Heim 1982, Kamp 1981) provides novel evidence against these approaches as a unified account. At the same time, however, this work is vindicated by covarying interpretations of weak-article definites, and provides the basis of the situational uniqueness analysis developed in the coming chapters. At the end of the day, both types of accounts seem to be needed to capture the full spectrum of types of definites in natural language.

# CHAPTER 3

# SITUATION SEMANTICS, DOMAIN RESTRICTION, AND QUANTIFICATION

Our discussion of the contrast between the weak and the strong article in chapter 2 lead us to the conclusion that it is promising to analyze weak-article definites as classical uniqueness definites, i.e., as involving a uniqueness requirement on their NP-complement. In contrast, the strong article seems to have different requirements, as it is anaphoric in nature. Uniqueness accounts need to appeal to some type of mechanism of domain restriction. I will argue that for a situational account of domain restriction, which comes for free in the situation semantics I use. This chapter provides such a general account, by introducing a situation semantic framework and presenting a detailed discussion of domain restriction effects in such a semantics. Weak-article definites are then analyzed in this framework in chapters 4 and 5.

Uniqueness-based analyses of definite descriptions, whether they build uniqueness into the truth-conditions (following Russell) or make it a presupposition (following Frege), face a fundamental problem in that there undeniably are many uses of definite descriptions whose NP-complements do not denote singleton sets. For example, a sentence such as (87) can be perfectly felicitous and true in an appropriate context,[1] despite the fact that there are many tables in the world, as Strawson (1950) famously discussed in the passage below the example, in which he criticizes Russell's (1905) uniqueness analysis.

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[1]It is important that we assume a context that does not involve prior mention of *a table*, since we are talking about the weak article here and don't want to deal with potential anaphoric uses that would involve the strong article in German.

(87)   The table is covered with books.

> It is quite certain that in any normal use of this sentence, the expression 'the table' would be used to make a unique reference, i.e. to refer some one table. It is a quite strict use of the definite article, in the sense in which Russell talks on p. 30 of *Prinicpia Mathematica*, of using the article "strictly, so as to imply uniqueness." On the same page Russell says that a phrase of the form "the so-and-so,", used strictly, "will only have an application in the event of there being one so-and-so and no more." Now it is obviously quite false that the phrase 'the table' in the sentence 'the table is covered with books,' used normally, will "only have an application in the event of there being one table and no more"
>
> (Strawson 1950, pp. 14-15)

While some (including Strawson) take examples like (87) to be an argument for the existence of *bona fide* referential uses of definite descriptions (and therefore against a uniqueness-based account), others see such 'incomplete' or 'improper' descriptions as a challenge to spell out within what limits uniqueness has to hold. Indeed, Neale (1990) argues that 'the problem of incompleteness has nothing to do with the use of definite descriptions *per se*; it is a quite general fact about the use of quantifiers in natural language' (Neale 1990, p. 95).[2,3] In the course of the following chapters, we will encounter numerous examples illustrating various parallels between quantifiers and definite descriptions along these lines. It would be desirable, then, to have the solution for incomplete descriptions fall out of a more general account of incompleteness with quantifiers (or determiners, to remain non-committal about the quantificational status of definites).

In connection with quantifiers, the problem of incompleteness usually is discussed under the header of '(quantifier) domain restriction'. The analysis of the weak article that I pursue in the following chapters is based on a situation semantic approach to

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[2]Neale presents a Russellian account, in which definite descriptions are seen as quantifiers. While I will present a presuppositional account, on which definite descriptions denote individuals that are unique relative to a situation, the effects of situational domain restriction will be completely parallel for quantifiers and definites.

[3]Heim (1991) also makes this point.

domain restriction. The basic semantic framework will be introduced in section 3.1. I adopt the standard view that (at least certain) noun phrases contain a syntactically represented situation pronoun, which will be crucial for the situational perspective on domain restriction. I will argue, however, for a non-standard position with respect to the location of situation pronouns inside of the DP, namely that they are introduced with the determiner. Furthermore, I assume that each clause (or at least each tensed clause) contains a syntactically represented topic situation, which plays an important role for domain restriction as well.

I begin section 3.2 by reviewing the approach to domain restriction based on contextually supplied variables (typically referred to as $C$-variables), which has been standard fare in the literature on generalized quantifiers at least since Westerstahl (1984), and then go on to present an alternative approach couched in a situation semantics (Barwise and Perry 1983, Cooper 1995, Kratzer 2004). I argue that the latter has (at least) two advantages: first it is based on mechanisms and assumptions that are independently needed to account for unrelated phenomena; secondly, it avoids a difficult problem that $C$-variable approaches face, which involves conflicting evidence about the location of the $C-$variable within the structure of the DP.

As quantificational examples with covarying interpretations of definites will play an important role in the chapters to come, some of the intricacies that arise in a system that involves quantification over situations are discussed in section 3.3.

## 3.1  Situation Semantics

I begin this section by introducing the basic setup of the situation semantics based on Kratzer (1989a). Next, I briefly review the case for representing situation arguments of noun phrases in the syntax and go on to argue that this should be done at the level of the DP, rather than within the NP, as is often assumed. I also introduce the notion of topic situations, which I assume to be syntactically represented as well.

I conclude by presenting the resulting type system and some sample lexical entries and computations of sentential meanings.

### 3.1.1 Basic Ingredients and Rules of Interpretation

I will use a possibilistic situation semantics based on Kratzer (1989a), which makes the following assumptions: The meaning of a sentence is a proposition, understood as a set of possible situations (or their characteristic functions). Situations are seen as particulars (unlike in other situation semantic frameworks, e.g., Barwise and Perry (1983)), and are parts of worlds. Worlds are maximal situations, i.e., situations that are not a proper part of any other situation. I will refer to the world that a given situation $s$ is part of as $w_s$. The situations that are part of a world form a mereological part structure, i.e., we can form the mereological sum of any two situations that belong to the same world. The corresponding part relation will be expressed by $\leq$ (where '$s \leq s'$' is to be read as '$s$ is a part of $s'$').[4] Any situation, as well as any individual, can only be part of one world. This means that we need the notion of counterparts in the sense of Lewis (1986) in order to talk about 'corresponding' individuals across different possible worlds. To the extent that counterparts do not play a central role to the discussion at hand, I will sometimes ignore this complication. For further details on the ontological commitments one has to make in this type of system, see Kratzer (1989a).

To compose sentence meanings, I will assume a system of direct interpretation with rules that are more or less standard, namely the following (adapted with slight changes from Heim and Kratzer 1998, von Fintel and Heim 2007):[5]

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[4]'$\leq$' can be defined in terms of the mereological sum operation: $s \leq s'$ iff $s+s' = s'$. Importantly, however, the part relation is restricted in that it only can hold between worldmate situations.

[5]The motivation for these exact formulations of the rules should become clear in the discussion throughout the following sections.

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(88)    a.  **Functional Application (FA)**

If $\alpha$ is a branching node and $\beta, \gamma$ the set of its daughters, then, for any context $c$ and any assignment $g$, $\alpha$ is in the domain of $[\![\ ]\!]^{c,g}$ if both $\beta$ and $\gamma$ are, and $[\![\beta]\!]^{c,g}$ is a function whose domain contains $[\![\gamma]\!]^{c,g}$. In that case, $[\![\alpha]\!]^{c,g} = [\![\beta]\!]^{c,g} ([\![\gamma]\!]^{c,g})$.

b.  **Predicate Modification (PM)**

If $\alpha$ is a branching node and $\beta, \gamma$ the set of its daughters, then, for any context $c$ and any assignment $g$, $\alpha$ is in the domain of $[\![\ ]\!]^{c,g}$ if both $\beta$ and $\gamma$ are, and $[\![\beta]\!]^{c,g}$ and $[\![\gamma]\!]^{c,g}$ are of type $\langle e, \langle s, t \rangle \rangle$. In that case, $[\![\alpha]\!]^{c,g} = \lambda x.\lambda s.\ [\![\beta]\!]^{c,g}(x)(s)\ \&\ [\![\gamma]\!]^{c,g}(x)(s)$

c.  **Pronouns and Traces**

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

d.  **Predicate Abstraction**

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

### 3.1.2    Situation Pronouns and Topic Situations

There are (at least) two aspects of situation semantics that play a crucial role for domain restriction, as we will see in more detail in section 3.2. The first, very general aspect, is the partiality provided by situations. The second concerns the question of what situation(s) the expressions in a given sentence can be interpreted in. This relates directly to the general design of our semantic system, as well as to independent issues in intensional semantics, and therefore should be addressed in the present introduction of the general framework to be used. In the following, I will first turn to the question of what situation(s) noun phrases can be interpreted in. Next, I introduce the notion of 'Austinian Topic Situations', and argue that sentences are interpreted relative to such situations.

### 3.1.2.1 Situation Pronouns in Noun Phrases

Since early on in work on intensional semantics of natural languages, it has been noticed that noun phrases in intensional contexts can be interpreted relative to worlds and times (or situations) other than those with respect to which the rest of the clause they appear in is evaluated (Enç 1981). Furthermore, it has been clear, at least since Fodor (1970), that this possibility cannot (or not solely) be due to these noun phrases taking higher scope than the embedding modal operator at the level of logical form, as there are interpretations that would require one scope position to appropriately capture the quantificational scope of a noun phrase, and another to interpret it in the appropriate world. An example where such an interpretation arises is given in (89).

(89)  Mary wants to buy a hat just like mine.

Fodor points out that sentences like (89) can be true in a scenario where Mary has not yet picked out a specific hat she wants to buy, but knows what kind of hat she wants to buy, which happens to be the kind of hat that I have. Making the standard assumption that attitude verbs like *want* (as well as modals) involve quantification over possible worlds, this means that, on the one hand, *a hat just like mine* cannot have wide scope with respect to *want*, since it is not the case that there is some particular hat that she wants; on the other hand, *a hat just like mine* has to be interpreted relative to the actual world, and not relative to Mary's 'desire-worlds', since the coincidental match between the type of hat she wants and my hat is something that holds in the actual world. Thus, the latter effect cannot be brought about by scoping the noun phrase above the attitude verb.

A similar scope paradox arises in conditionals (von Stechow 1984, Abusch 1994, Percus 2000, Keshet 2008), e.g., in (90):[6]

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[6]This is by no means a comprehensive overview of the examples in the literature. See Keshet (2008) for a recent review of the relevant evidence.

(90)    If everyone in this room were outside, the room would be empty.(Percus 2000)

The quantificational noun phrase *Everyone in this room* cannot be interpreted in the same world as the predicate in the *if*-clause, since the two are incompatible. But it also can't be interpreted with scope over the *if*-clause, because that (in addition to raising syntactic worries) would yield the incorrect reading that for each individual person actually in this room it holds that if this person were outside, the room would be empty. These types of examples thus seem to be cases where a noun phrase (that remains within its original clause at LF) is interpreted relative to a possible world that is different from the possible world with respect to which the main predicate of its clause is evaluated.

While the above examples would traditionally be seen as involving the possible world parameter of the relevant predicates, similar effects arise with respect to the temporal interpretation of noun phrases relative to the tense of a sentence as well, as illustrated by the following type of example due to Enc (1986):[7]

(91)    Every fugitive is in jail.

At the present time, at which the relevant people are said to be in jail (given the present tense on the verb), they are no longer fugitives. Nonetheless, the sentence has a coherent interpretation. Again, the basic effect we observe is that the predicate in the DP is evaluated at a different time than the predicate of its clause.

The standard solution for capturing the independence of the world parameter of the predicate of a noun phrase is to assume the presence of an unpronounced, but syntactically represented, possible world pronoun inside of the noun phrase, which saturates the possible world argument of the predicate denoted by the noun (Percus

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[7]For a recent overview of parallel effects for times and worlds, see Keshet (2008).

2000, von Fintel and Heim 2007).[8]   As we are working in a situation semantics, I will assume that this is a situation pronoun (which I will sometimes refer to as a '(resource) situation pronoun', following Barwise and Perry 1983, Cooper 1993, Cooper 1995, Kratzer 2007), which saturates the situation argument of the nominal predicate.[9]   Since situations have a temporal dimension as well, these will also be relevant for the parallel effects in the temporal domain.

Situation pronouns are interpreted just like personal pronouns, understood as a variable, and can therefore be bound or be assigned a value by a contextually supplied assignment function (using the Pronouns and Traces Rule in (88c)).  Assuming (a simplified version of) a semantics of counterfactuals and suitable binding mechanisms (details of implementation will be introduced below), a sentence such as (90), for example, could receive truth conditions along the lines of (92), based on a logical form that includes a situation pronoun inside of the noun phrase, as indicated in (90'):[10]

(90')   If [everyone in this room $s$] were outside, the room would be empty.

(92)   For any situation $s$, (90') is true in $s$ iff for every accessible situation $s'$

such that everyone in this room in $s$ is outside in $s'$, this room is empty in $s'$.

---

[8]For other arguments supporting the notion that situations are syntactically represented, see Kratzer (2007), who adapts parallel arguments for worlds and times (going back to Kamp 1971, Partee 1973, Vlach 1973, van Benthem 1977, Cresswell 1990).

[9]There is no widely accepted standard terminology in the situation semantic literature for these notions. The term 'resource situation' sometimes is used to refer to the situation argument of noun phrases, but sometimes also to refer to a contextually salient situation that can serve as the value assigned to the situation pronoun by the assignment function. I will reserve the term 'resource situation pronoun' (and abbreviated versions thereof, such as 'situation pronoun' or 'resource situation') for the syntactically represented situation argument of noun phrases.

[10]Once we introduce situation pronouns into our system, one crucial question that arises is exactly which situation arguments that are present in the semantics (e.g., those that come with standard denotations of predicates) are saturated by a syntactically represented situation pronoun. In the system I develop below, the only syntactically represented situation arguments are those in (certain) noun phrases and topic situations.

Other examples that involve different types of expressions introducing quantification over situations can be captured along similar lines. I will adopt the convention of referring to cases where the situation pronoun on a noun phrase in the scope of an intensional operator is bound by the highest situation binder (which, as we will see in the next section, corresponds to counterparts of the topic situation) as transparent uses.[11] Cases where it is bound by an intensional operator will be referred to as opaque uses.

One important question for accounts utilizing situation pronouns inside of noun phrases is where exactly in the structure these pronouns appear. While some authors, such as Percus (2000), remain neutral in this regard, others have made more specific assumptions. Kratzer (2004) and von Fintel and Heim (2007), for example, assume that situation pronouns appear inside of the NP, so that determiners combine with an object of type $\langle et \rangle$:

(93)
```
            DP
          /    \
      Every     NP
              /    \
          person    s
```
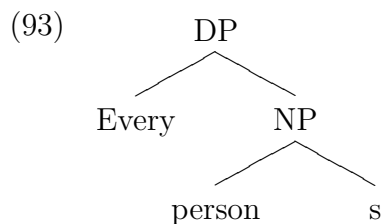
It is perfectly conceivable as well, however, that the situation pronoun is introduced with the determiner. This is the option chosen by Büring (2004).[12]

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[11]Eventually, transparent uses will make up a slightly larger class, which includes any cases where the situation pronoun on a noun phrase is interpreted relative to a situation that is part of the same world as the relevant counterpart of the topic situation. This includes transparent interpretations of noun phrases that are evaluated with respect to a contextually supplied situation. See section 4.3.2 for the implementation of this complication.

[12]Note that Büring introduces the situation pronoun as an index on the determiner, rather than in a separate node of its own.

(94)

```
              DP
            /      \
          D'         NP
        /    \        |
     every    s     person
```
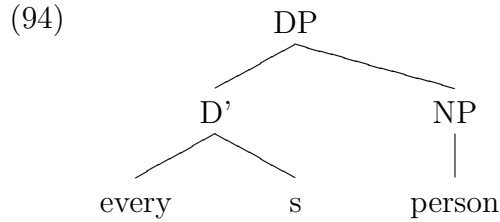
Is there any reason to prefer one version over the other? Within a situation semantics, I'd like to argue that there are at least two reasons for choosing the latter option. The first is based on the fact that quantification in a situation semantics requires some notion of minimality for the situations quantified over in the restrictor of the quantifier. The second concerns an argument about the truth conditions of sentences involving temporally independent interpretations of quantificational noun phrases (as in (91)), due to Kusumoto (2005).[13]

For a number of reasons that will be discussed in more detail in section 3.3, as well as in chapter 4, quantificational determiners are commonly argued to involve quantification over both individuals and situations. But they can't just be seen as quantifying over any situations that contain the individuals and properties introduced in the restrictor. Rather, it is standard to assume, at least since Berman (1987), that they quantify over situations that are, in some sense, minimal. For example, situation semantic accounts provide truth conditions for donkey sentences (such as (95a)) along the lines of (95b) (Berman 1987, Heim 1990, Elbourne 2005).

_____

[13]See the Aside in section 3.1.3 for further advantages for the second option.

(95)   a. Every farmer who owns a donkey beats it.

    b. For any situation $s$, (95a) is true in $s$ iff

        for every individual $x$ and every situation $s' \leq s$

           such that $s'$ is a minimal situation

               such that there is a donkey $y$ and $x$ is a farmer who owns $y$ in $s'$

             there is a situation $s''$ such that $s' \leq s'' \leq s$ and $x$ beats the unique

        donkey

          in $s''$

While I will argue in section 3.3, following Kratzer (2007), that the appropriate notion of minimality is that of 'exemplification', the crucial point for the current discussion is that any relevant notion of minimality will express a relation between propositions (i.e., sets of situations) and situations. In order to derive an interpretation of quantificational sentences along the lines of (95b), denotations of quantificational determiners will have to be able to access a proposition based on the property denoted by the restrictor. The meaning for *every* that will emerge in our discussions to follow, for example, will include the following condition in its restrictor:

(96)   $[\![every]\!] = \lambda P_{\langle e,st \rangle} \lambda Q_{\langle e,st \rangle} \lambda s. \forall x \forall s'[\ldots EX(P(x))(s') \ldots \rightarrow \ldots]$

Assuming $EX$ to express an appropriate notion of minimality (where '$EX(S)(s)$' is to be read as '$s$ exemplifies the proposition $S$'), this will provide the desired effect, as $P(x)$ will give us a proposition derived from the property $P$ given the individual argument $x$. For this to be possible, it is crucial, however, that the argument that a quantificational determiner like *every* takes is a property (i.e., of type $\langle e, st \rangle$). If we introduce a situation pronoun inside of the NP, however, as in (93), all that the determiner can access is a set of individuals (i.e., its complement will be of type $\langle e, t \rangle$), which does not allow us to access a proposition based on the meaning of the restrictor. If we assume situation pronouns to be introduced at the level of the DP, as

in (94), on the other hand, the restrictor argument of the quantificational determiner will be a property (of type $\langle e, st \rangle$), as required. Any situation semantic account that assumes situation pronouns inside of noun phrases and that introduces quantification over 'minimal' situations in the meanings of quantificational determiners therefore will have to adopt (a version of) the structure in (94), i.e., locate situation pronouns at the level of the DP.

A second, more directly empirical argument for this conclusion comes from the literature on tense. Enc (1986) analyzes examples such as (91), repeated from above, by assuming that the NP contains a temporal pronoun whose value is contextually supplied, i.e., a version of the structure in (93). However, Kusumoto (2005) argues that the truth conditions based on such an analysis, which she assumes to be as in (97), are insufficient, in that they make false predictions for certain scenarios.

(91)  Every fugitive is in jail.

(97)   a.  $[_{TP}t^* \text{ PRES}\lambda_2 \text{ pres}_2 [_{VP}[_{NP} \text{ Every } [\underline{t_3 \text{ fugitive }}]] \text{ be in jail}]]$

     b.  $[\![(97a)]\!]^{g,c}(w) = 1$ iff there is a time $t'$ overlapping $s^*$ such that for every (contextually salient) individual $x$ such that $\underline{x \text{ is a fugitive at } g_c(3)}$ in $w$, $x$ is in jail at $t'$ in $w$.

<div align="center">(Kusumoto 2005, p. 342, underlining added for emphasis, FS)</div>

Crucially, on this view the noun *fugitive* combines with a temporal pronoun $t_3$, which receives a value via the assignment function. Kusumoto provides the following scenario to illustrate the insufficiency of these truth conditions:

> Suppose that there is a group of five people who were fugitives at different times in the past but are currently in jail. Under this scenario the sentence can still be truthfully uttered. If the time argument of a noun is represented as a free time variable whose value is contextually determined, the value assigned cannot vary from one fugitive to another.
> (Kusumoto 2005, p. 342)

The conclusion Kusumoto draws from this is that there are no temporal pronouns inside of noun phrases. Instead, following Musan (1995), she assumes that quantifiers like *every* introduce existential quantification over the temporal argument of their restrictor predicate, as in (98), which yields the truth conditions in (99) for (91).

(98)  $[\![every]\!]^g =$

$\lambda P \in D_{\langle e,\langle i,\langle st\rangle\rangle\rangle}.[\lambda Q \in D_{\langle e,\langle i,\langle st\rangle\rangle\rangle}.[\lambda t \in D_i[\lambda w \in D_s[\text{for every individual}$
$x \text{ such that there is a time } t' \text{ such that } P(x)(t')(w) = 1, Q(x)(t)(w) = 1]]]]$

(99)   a. [TP $t^*$ PRES $\lambda_2$ pres$_2$ [$_{VP}$ Every fugitive be in jail]]

   b. $[\![(99a)]\!]^{g,c}(w) = 1$ iff there is a time $t'$ overlapping $s^*$ such that for every (contextually salient) individual $x$ such that there is a time $t''$ such that $x$ is a fugitive at $t''$ in $w$, $x$ is in jail at $t'$ in $w$.

These truth conditions correctly predict (91) to be true in the scenario given above, as they simply require that for each of the people quantified over, there is some time at which they were fugitives.

While I agree that Kusumoto's scenario presents a convincing argument against assuming a temporal pronoun inside of the NP, it doesn't preclude the possibility of introducing one with the determiner. This pronoun can then serve to restrict the existential quantification over times that binds the relevant argument of the NP predicate. A situation semantic version of this idea could roughly look as follows:[14]

(100)  $[\![every]\!]^g = \lambda s'.\lambda P.\lambda Q.\lambda s \ \forall x[\exists s''[s'' \leq s' \ \& \ P(x)(s'')] \rightarrow Q(x)(s)]$

(101)  $[\![(99a)]\!]^{g,c} = \lambda s. \ \forall x[\exists s''[s'' \leq g(1) \ \& \ \text{fugitive}(x)(s'')] \rightarrow \text{in-jail}(x)(s)]$

The first situation argument of *every* here would be a situation pronoun, which will be assigned a value by the assignment function. This situation could be located

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[14]This is not intended as a full and serious proposal, but rather as a rough illustration of the type of approach I will develop below, which remains at least somewhat close to Musan's and Kusumoto's proposals.

in the past, and the existential quantification over parts of it will provide the correct truth conditions for Kusumoto's scenario, while at the same time making use of a contextually supplied situation that provides the broader situational frame inside of which these people were fugitives (if possibly at different times inside of that frame). The presence of this situation pronoun will be crucial for capturing domain restriction effects (see section 3.2). Mere existential quantification over the situation argument of the restrictor predicate, as Musan and Kusumoto propose for the temporal argument, would not be of much help in this respect.

It is worth noting that this approach is compatible with Musan's (1995) analysis of the contrast between noun phrases that do exhibit temporal independence and those that do not, i.e., in Musan's (1995) terminology, between strong, presuppositional noun phrases on the one hand and cardinal ones on the other. Musan (1995) argues for such a contrast based on minimal pairs such as the following (see Keshet (2008) for parallel examples in the modal realm).

(91)   Every fugitive is in jail.

(102)   There is a fugitive in jail.

In contrast to (91), (102) does not have a consistent interpretation, i.e. the cardinal noun phrase *a fugitive* cannot be interpreted at a time different from that of the sentence as a whole. Since Musan locates the difference between these examples in the choice of determiner, temporally independent interpretations of DPs must be due to the determiner. While accounts that assume situation (or time) pronouns at the level of the NP can't capture this fact without additional assumptions (Keshet 2008), accounts that introduce such pronouns with the determiner can explain this naturally, along the same lines as Musan proposes. The difference between the two types of noun phrases, on Musan's accounts, is that cardinal quantificational determiners, unlike presuppositional ones, do not introduce the relevant extra level of quantification over times, and thus force their restrictor noun phrases to be evaluated at the

same time as the clause they occur in. On our proposal, they will not take a situation pronoun as an argument, which is responsible for the temporally (and more generally, situationally) independent interpretation of noun phrases.

For the purposes of accounting for domain restriction effects, the key point of the discussion in this section is that noun phrases are interpreted relative to a situation that is introduced by a situation pronoun in the DP. Given the partiality of situations, this means that the meanings of noun phrases can be restricted to individuals within certain parts of the world.

### 3.1.2.2   Austinian Topic Situations

One further situation semantic notion that is highly relevant for capturing domain restriction phenomena is that of a 'topic situation', which goes back to Austin and plays an important role in the situation semantics by Barwise and Perry (1983). The core idea is that utterances are used to make a claim about some specific situation, and thus, that the truth of a proposition expressed by a sentence should be considered with respect to this situation.

The basic evidence is very much parallel to that found in the literature on tense, which has lead to the notion of 'topic time'. For example, a simple past tense sentence such as 'I forgot to turn off the stove' does not merely claim that there was some time in the past at which I forgot to turn off the stove, but rather that there is a specific time, e.g., just before I left the house today, for which this claim holds (Partee 1973, Klein 1994). Barwise and Etchemendy (1987) illustrate a parallel case in the realm of situations with the following example. They argue (103) to be a claim about a particular situation, which means that it will be false if it is accidentally true of some other situation.

(103)   Claire has the three of clubs.

> We might imagine, for example, that there are two card games going
> on, one across town from the other: Max is playing cards with Emily and

Sophie, and Claire is playing cards with Dana. Suppose someone watching the former game mistakes Emily for Claire, and claims that Claire has the three of clubs. She would be wrong on the Austinian account, even if Claire had the three of clubs across town.

(Barwise and Etchemendy 1987, p. 122)

One possibility for capturing topic situations formally is to view 'Austinian propositions' as pairs of situations and propositions (see, e.g. Barwise and Etchemendy 1987, Recanati 1996, Recanati 2000). Kratzer (2004), for example, suggests that we model assertions by assuming an ASSERT operator that takes Austinian propositions as its argument. In a variation of this idea, Kratzer (Ms., 2008) proposes that topic situations are introduced via tense, which she defines in situational terms, as they also take over the role assigned to topic times. One important choice that any of these approaches has to make is whether or not topic situations should be syntactically represented, like the situation pronouns in DPs. The parallels with tense, among other things, may give us reason to do so.[15] Unfortunately, I am not able to present a detailed argument for this in the context of the present discussion. To have a concrete proposal to work with, and to maintain parallels with situation pronouns inside of DPs, I will assume that topic situations are represented and introduced as arguments of a *topic* operator, adopted with slight modifications from Kratzer (Ms., 2008).[16]

(104)   $[\![topic]\!] = \lambda p.\lambda s'.\lambda s \; s \approx s' \; \& \; p(s)$

---

[15]Kratzer has proposed in various places that propositional attitude verbs, such as *believe*, take an Austinian proposition as their argument. This would seem to provide another argument that topic situations (or *res* situations, as they are sometimes referred to in this context) should be represented in the syntactic structure.

[16]This particular formulation may have some interesting implications for conjunction. See Portner (1992) and McKenzie (2007) for some relevant discussions.

(105)    a.

```
        s_topic
       /      \
            topic    p
           /     \
```
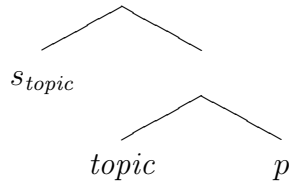
The '≈' in the entry for *topic* stands for the counterpart relation (Lewis 1986). Thus, applying the *topic* operator to a proposition $p$ and the topic situation $s_{topic}$ will yield the set of all those counterparts of the topic situation in which $p$ is true. Intuitively, claiming that $p$ holds relative to a topic situation $s_{topic}$ amounts to saying that the topic situation has a certain property. But speakers are not in a position to determine what world they are in (as this would require one to be omniscient) and therefore what the actual topic situation is. Furthermore, we want the resulting clausal meanings to be embeddable propositions, and not just truth-values. We capture this by attributing the relevant property to all of the counterparts of the topic situation.

The introduction of a topic situation will give us an additional possibility for capturing aspects of domain restriction. A proposition expressed by a sentence will now be evaluated for truth with respect to a particular part of the world, which allows for the possibility of quantifying only over individuals in that part of the world.

In order for topic situations to play a meaningful role in a detailed semantic account of domain restriction and the definite articles in German, we need a specific proposal for how the topic situation of a sentence is determined. In the present chapter, I will appeal to an intuitive understanding of this notion as being the situation a sentence is about. A detailed proposal for how topic situations are determined will be presented in chapter 4, in the context of the discussion of their role in the analysis of weak-article definites.

### 3.1.3 Type System and Sample Lexical Entries

Based on the discussion in section 3.1.2, there are exactly two places in the type system I will use in which situations are syntactically represented: as sisters of determiners[17] and at the top of clauses as topic situations.[18] The types of expressions in the various syntactic categories will have to be adjusted accordingly. The basic structure of a simple sentence will be as follows:

(106)

$\langle st \rangle$

$s_{topic}$    $\langle s, st \rangle$

$topic_{\langle st, \langle s, st \rangle \rangle}$    $\langle st \rangle$

$\text{DP}_{\langle e, st \langle st \rangle \rangle}$    $\text{VP}_{\langle e, st \rangle}$

$\text{D'}_{\langle e, st \langle \langle e, st \rangle st \rangle \rangle}$    $\text{NP}_{\langle e, st \rangle}$   *laughed*

$every_{\langle s, \langle e, st \langle \langle e, st \rangle st \rangle \rangle \rangle}$    $s_r$    *man*
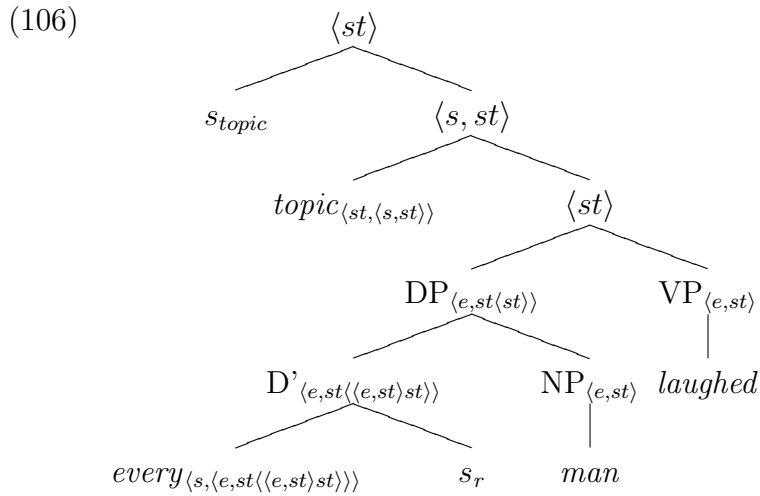
To aide readability, I will use $s_r$ for resource situation pronouns in DPs, but there is no special status attached to this notation. It should be considered as a notational variant of standard indexed variables (I'll assume that $r$ can receive a value via the assignment function $g$ or be bound, just like regular indices represented by the natural numbers).

The lexical entries for nouns and verbs will be standard (107, 108). The exact meaning of determiners will have to be continuously re-evaluated as we proceed with our discussion of situational domain restriction in section 3.2 and quantification over

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[17]To the extent that we follow Musan (1995), this will only be so for strong, presuppositional determiners.

[18]If we introduce topic situations via tense, they will be introduce in the TP; if we assume them to be introduced separately, a topic projection within the CP might be a plausible choice.

situations in section 3.3. Let's start out with the oversimplified entry for *every* in (109).[19]

(107)   $[\![laugh]\!] = \lambda x \in D_e.\lambda s \in D_s.\ \mathrm{laugh}(x)(s)$

(108)   $[\![man]\!] = \lambda x \in D_e.\lambda s \in D_s.\ \mathrm{man}(x)(s)$

(109)   $[\![every]\!] =$

$\lambda s_r \in D_s.\lambda P \in D_{\langle e,st \rangle}.\lambda Q \in D_{\langle e,st \rangle}.\lambda s \in D_s.\ \forall x\ [P(x)(s_r) \rightarrow Q(x)(s)]$

Crucially, this entry for *every* allows the nominal restrictor phrase of the quantifier to be evaluated with respect to a situation different from the one in which the nuclear scope is evaluated. To compute the meaning of (106), we simply need to combine the meanings of all the pairs of sister nodes via functional application, which will yield the following proposition:

(110)   $[\![(106)]\!]^{c,g} = \lambda s.s \approx s_{topic}\ \&\ \forall x[\mathrm{man}(x)(g(r)) \rightarrow \mathrm{laugh}(x)(s)]$

Since the variable introduced by the situation pronoun on *every*, $s_r$, remains free in the structure in (106), it is assigned a value by the assignment function $g$. As we will see in our discussions of domain restriction below, this allows us to capture cases where a quantifier is interpreted relative to a contextually salient situation.

We also will want to have the capacity of identifying the situation pronoun in the DP with the (counterparts of the) topic situation (again, to provide us with additional possibilities for capturing domain restriction). In order to do so, I introduce a binding operator $\Sigma$ (adapted from Büring 2004) in the syntax (111), which is adjoined below *topic*. The computation of the meaning of such a structure, based on the current working versions of the lexical entries, is illustrated in (112).

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[19]Here and in the following, I will adopt the convention of omitting the superscripts $c$ and $g$ on the interpretation function when the expressions that are being evaluated by it are not sensitive to them. I also will omit the explicit representation of types of variables when the type of the variable is clear from the context. The notation I use for predicates, such as 'laugh$(x)(s)$', is to be understood as a short form for '$x$ laughs in $s$'.

(111)   $[\![\Sigma_n\ \text{XP}]\!]^g = \lambda s.[\![\text{XP}]\!]^{g[s_n \to s]}(s)$

<div align="right">Variant of Büring (2004), for XPs of type $\langle s, t \rangle$</div>

(112)   $\lambda s.s \approx s_{topic}\ \&\ \forall x[\text{man}(x)(s) \to \text{laugh}(x)(s)]$

$s_{topic}$   $\lambda s'.\lambda s.s \approx s'\ \&\ \forall x[\text{man}(x)(s) \to \text{laugh}(x)(s)]$

$\lambda p.\lambda s'.\lambda s.s \approx s'\ \&\ p(s)$ — *topic*   $\lambda s.\forall x[\text{man}(x)\underline{(s)} \to \text{laugh}(x)(s)]$

$\Sigma_r$   $\lambda s.\forall x[\text{man}(x)\underline{(s_r)} \to \text{laugh}(x)(s)]$

$\lambda Q.\lambda s.\forall x[\text{man}(x)(s_r) \to Q(x)(s)]$   $\lambda x.\lambda s.\text{laugh}(x)(s)$ — *laughed*

$\lambda P.\lambda Q.\lambda s.\forall x[P(x)(s_r) \to Q(x)(s)]$   $\lambda x.\lambda s.\text{man}(x)(s))$ — *man*

$\lambda s_r.\lambda P.\lambda Q.\lambda s.\forall x[P(x)(s_r) \to Q(x)(s)]$ — *every*   $s_r$
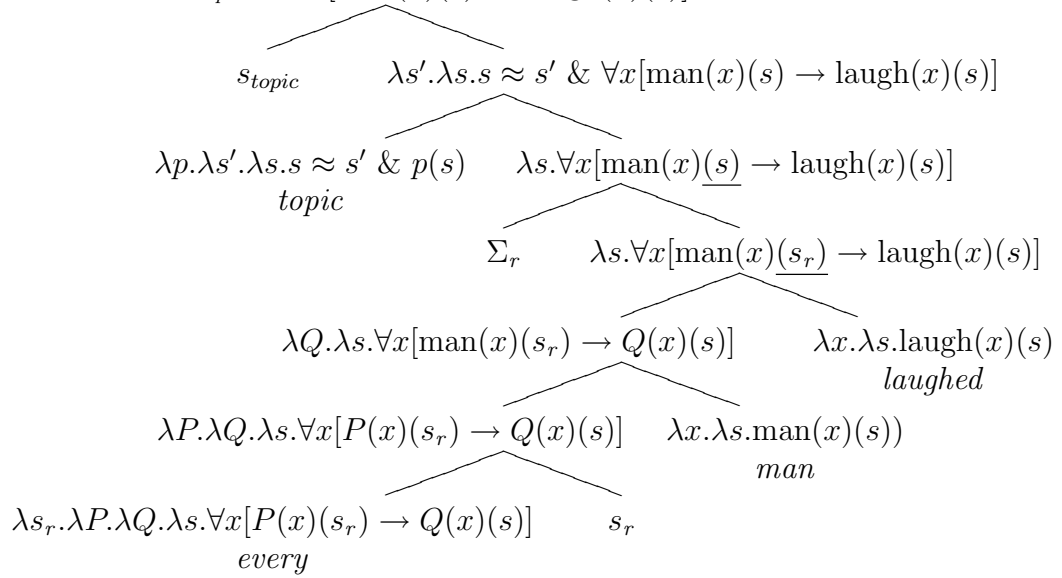
$\Sigma$ will also be used to derive opaque readings, as they require the situation pronoun in noun phrases to be bound by a modal operator. To achieve this, $\Sigma$ has to be adjoined below the modal operator, as in the following schema.[20]

(113)   $\ldots topic\ [OP\ [\Sigma_r\ [_{VP} \ldots [[D\ s_r]\ NP] \ldots]]]$

In transparent uses of noun phrases in intensional contexts, on the other hand, the situation pronoun will be bound by a $\Sigma$ adjoined below the top-most *topic* node:[21]

(114)   $\ldots topic\ [\Sigma_r\ [\ldots OP\ [_{VP} \ldots [[D\ s_r]\ NP] \ldots]$

The system presented here thus allows us to capture both transparent and opaque interpretations, as well as providing us with the option of interpreting situation pro-

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[20] $OP$ stands for a propositional modal operator, such as a modal or an attitude verb. Assuming such operators to involve quantification over situations, their meanings will generally fit the following schema: $\lambda p.\lambda s.OPs'[ACC(s)(s') \ldots p(s') \ldots]$ (where 'ACC' stands for a suitable accessibility relation).

[21] Alternatively, a transparent use can be due to the situation pronoun receiving a value via the assignment function. See chapter 4, section 4.3.2, for a detailed analysis of such a case.

nouns relative to a topic situation or a contextually salient situation, which will be important for the situation semantic approach to domain restriction developed in section 3.2.

**Aside: The Issue of Binding Restrictions for Situation Pronouns**

Before closing this section, a brief note on how the system introduced above compares to others in the literature: Many accounts using situation pronouns assume that verb phrases, too, contain their own syntactically represented situation pronouns (Percus 2000, von Fintel and Heim 2007, Keshet 2008). The general structure of sentences according to these accounts is roughly as follows:[22]

(115)

$\langle s,t \rangle$
$\lambda_1$     t
$NP_{\langle et,t \rangle}$     $\langle et \rangle$
*Every man*   $s_{1/2}$   $s_1$   $VP_{\langle s,et \rangle}$
laughed
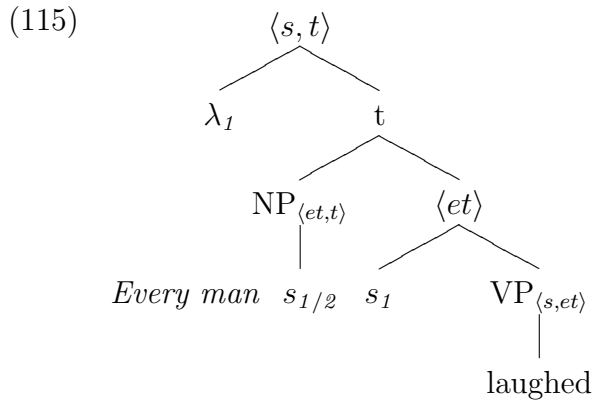
Assuming that we want sentences to denote propositions, this setup requires that we introduce a $\lambda$-abstractor over situations at the top of the clause that can bind the situation pronouns appearing in its scope. As (Percus 2000) discusses at length, this system has to be restrained to capture the fact that situation pronouns occurring on verbs (as well as adverbial quantifiers), unlike those on noun phrases, have to be bound by the closest lambda abstractor, because verbs in intensional contexts do not seem to have transparent interpretations.

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[22]I use '1/2' on the situation pronoun in the noun phrase to indicate two possible indices that illustrate both possible binding configurations.

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It is unclear at this point why there should be such binding restrictions on some situation pronouns but not others. It is worth noting, then, that this issue does not arise in the system presented above. Since verb phrases do not contain a syntactically represented situation pronoun of their own, their situation argument has to be interpreted relative to the closest propositional operator.[23]

Parallel issues for noun phrases arise for (at least certain versions of) proposals that introduce situation pronouns at the level of the NP. Keshet (2008) (building on Musan 1995) discusses the 'Intersective Predicate Generalization':

(116)   Two predicates composed via Predicate Modification may not be evaluated at different times or worlds from one another.

(Keshet 2008, p. 44)

This generalization does not fall out for free if we allow for the possibility that NPs and their modifiers have their own situation pronoun, since these pronouns could in principle be bound by different $\lambda$-abstractors over situations. However, if situation pronouns are introduced with the determiner, as in the type system developed here, then NPs and their modifiers have no choice but combine in a manner that results in them being interpreted relative to the same situation.[24]

Furthermore, this type of system also can account for Keshet's (2008) 'generalization Z', which says that 'the situation pronoun selected for by a noun in a weak NP must be coindexed with the nearest $\lambda$ above it' (Keshet 2008, p. 126). If we adapt Musan's proposal for cardinal noun phrases to situations, as suggested above, then their determiner will not introduce a situation pronoun, which, again, means that

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[23]This point is also made by Büring (2004).

[24]One of the notable exceptions to this generalization are relative clauses, which suggests that these may introduce their own situation pronoun. I will discuss this issue in chapter 6.

the noun phrase has no choice but to be interpreted relative to the situation of its clause.[25]

### 3.1.4 Summary

There are two key features of the situation semantics that I introduced in this section: I argued that (certain) determiners introduce syntactically represented situation pronouns. Such pronouns are needed to account for the well known transparent-opaque ambiguity of noun phrases in intensional contexts, but are typically assumed to be located at the level of the NP. I have argued that in a situation semantics like the one adopted here, they should be introduced at the level of the DP. Secondly, I adopted the view that sentences are interpreted relative to a topic situation, which I also chose to represent in the structure. Both of these two types of situations will play a central role in the situation semantic account of domain restriction that is presented in the next section and utilized in the account of the weak article in chapter 4.

## 3.2 Domain Restriction

In this section, I provide a brief review of domain restriction accounts that assume a contextually supplied $C$-variable, and present an alternative, situation semantic account. The central points arguing in favor of the latter are that it utilizes independently needed mechanisms and that it doesn't face the same problem as $C$-variable accounts with respect to the location of domain restriction.

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[25]Keshet discusses sentences like the following:

(i)  Mary thinks there were professors of my favorite subject in the kitchen.

He argues that *professors* has to be interpreted relative to the situation of the embedded clause, while *my favorite subject* can have a transparent reading. The latter contains, of course, a strong, presuppositional determiner, which, on the current account, introduces its own situation pronoun.

### 3.2.1 Domain Restriction with a $C$-variable

### 3.2.1.1 Domain Restriction Variables in Noun Phrases

One common approach to analyzing domain restriction is the following. Assuming the (by now standard) analysis of quantificational determiners as relations between sets (or properties, in an intensional semantics) (Barwise and Cooper 1981), the set denoted by the nominal restrictor (i.e., the noun phrase that a quantificational determiner takes as its first argument) can be assumed to be conjoined with a contextually supplied set to yield a more restrictive set that serves as the domain of quantification (Westerstahl 1984, von Fintel 1994). One type of evidence favoring such an approach over, e.g., the alternative possibility that utterances in general are interpreted with respect to a restricted universe of discourse, comes from examples such as the following.

(117)   Sweden is a funny place. Every tennis player looks like Björn Borg, and more men than women watch tennis on TV. But most people really dislike foreign tennis players.

    (von Fintel 1994, p. 29, ex. 20, modeled after an example from Westerstahl 1984)

The key point in the last sentence here is that *most people* is most naturally understood as *most Swedes*, while, at the same time, the universe of discourse cannot be restricted to Swedes, because we also have to interpret *foreign tennis players*. Thus, it looks like each quantificational noun phrase needs to be able to access its own 'resource domain', in von Fintel's (1994) terminology. In technical terms, this idea can be implemented by assuming that determiners $\delta$ are indexed with a variable over properties $C$, which receives a value from the context via the assignment function

*g*. This value will be a set (or property), which is then intersected with the set (or property) denoted by the nominal restrictor:[26]

(118)   $[\![\delta_c]\!]^g = \lambda P_{\langle e,t\rangle}.\lambda Q_{\langle e,t\rangle}. \; \delta^*\langle P \cap g(C), \; Q\rangle$

As von Fintel (1994, p. 29, footnote 18) notes, the same point has been made in the literature on incomplete descriptions as well, with examples such as the following:

(119)   The pig is grunting, but the pig with floppy ears is not grunting.

(Lewis 1973, pp. 111-117)

(120)   Yesterday the dog got into a fight with a dog. The dogs were snarling at each other for half an hour, I'll have to see to it that the dog doesn't get near that dog again.

(McCawley 1979)

(121)   The cook's father is also a cook.

(Soames 1986)

In all of these examples a definite is used in the same sentence as another noun phrase that requires the existence of another individual fitting the same description. Therefore, the definite cannot be evaluated with respect to a universe of discourse that is fixed for the entire sentence.

The examples considered so far could also be accounted for by assuming that the context can change rapidly within a sentence, allowing different noun phrases to be interpreted relative to a different contexts (as was proposed, for example, by Kratzer 1978, von Stechow 1979). However, examples involving quantificational binding of domain restrictions, such as (122), provide a strong argument in favor of domain restriction variables on noun phrases (von Fintel 1994).

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[26]The schema is adapted from von Fintel (1994, p. 31) to the $\lambda$-notation used here. $\delta_c$ stands for a quantificational determiner as a natural language expression, $\delta^*$ for the relation between sets that that determiner denotes.

(122)  Everyone answered every question.                   (Stanley and Szabo (2000),

(after examples by von Fintel 1994, Cooper 1993)

(123)  Only one class was so bad that no student passed the exam.     (Heim 1991)

Furthermore, these examples provide a powerful argument against purely prag-
matic accounts, which assume that domain restriction is not represented syntacti-
cally, as it is unclear how the effect of quantificational binding could be implemented
without having some syntactically represented variable that is bound (for detailed
discussion, see Stanley and Szabo 2000).

The proposal by von Fintel (1994, p. 31) is that quantificational binding of do-
main restriction variables can be modeled by assuming that $C$ can have the complex
structure $f(i_1, \ldots, i_n)$, where $f$ is an n-place function variable and $i_1, \ldots, i_n$ are in-
dividual variables. In (122), $f$ would be a (one-place) function mapping individuals
to sets of questions, for example, and in (123) a (one-place) function mapping classes
to sets of students. The individual variable $i$ is assumed to be bound by the higher
quantifier, which yields the desired effect of the domain of the lower DP covarying
with the students or classes quantified over.[27]

Parallel analyses have been proposed in the literature on definites and pronouns
as well, in particular to account for donkey pronouns (Cooper 1979, Heim 1990,
Chierchia 1992, Heim and Kratzer 1998) and certain kinds of covarying readings of
definites (Chierchia 1995).

(124)    a.  Every farmer who owns a donkey beats it.

b.  *it*: $[_{DP}$ the $[_{NP}[_N\ R_{\langle 7, \langle e, et \rangle \rangle}][_{DP}\ pro_{\langle 1, e \rangle}]]]$

$g(7) = \lambda x. \lambda y.\ y$ is a donkey that $x$ owns

(In Heim and Kratzer's (1998) version of Cooper's (1979) approach)

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[27]Stanley (2002) also provides examples in which the function variable is bound.

(125)    a. Every student who was given a pen and a notepad lost the pen.

   b. $[\![$ *the pen* $]\!]^g = \iota x.\ R_{\langle 7, \langle e, et \rangle \rangle}(y)(x)$ & $\text{pen}(x)^{28}$

   $g(7) = \lambda y.\lambda x.\ x$ was given to $y$

<div align="right">(Chierchia 1995, p. 223, ex. (63b))</div>

<div align="right">(notation assimilated to Heim and Kratzer's (1998))</div>

In (124a), *it* is construed as an E-type pronoun (or a D-type pronoun, if we follow Neale's (1990) and Elbourne's (2005) terminology), and the assignment function $g$ provides a function from people (or farmers) to the set of donkeys they own as the value for the free functional variable $R$. This yields the desired interpretation that each farmer beats the donkey he owns.[29] Similarly, in (125a), the definite *the pen* has its domain further restricted by a (complex) domain restriction variable, which is assigned a function from people (or students) to the set of things that they were given, which ensures that the definite receives a covarying interpretation (on which different students lost different pens, namely whichever one they were given).

### 3.2.1.2    The Problem of the Location of the $C$-variable

One important question that arises for accounts like these is where the domain restriction variable is introduced into the logical form. One view is that it is introduced with the quantificational determiner (Westerstahl 1984, von Fintel 1994, Martí 2003). Another possibility is that it is introduced with the nominal restrictor. Stanley and Szabo (2000) and Stanley (2002) provide a number of arguments in favor of the latter view. More specifically, they propose that the domain restriction variable is introduced with the head noun of the restrictor clause.

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[28]It's not clear that Chierchia is committed to any claims about the syntactic status of the variable R, which is why I only give the meaning he would assign to the definite description in question.

[29]More precisely, that each farmer beats the unique donkey he owns. This is problematic insofar as (124a) can be true even if some farmers own more than one donkey. I won't discuss the details of this problem and possible solutions to it at this point.

The first argument, presented by Stanley and Szabo (2000), involves different readings of cross-sentential anaphora. Consider the following sentence, uttered in a conversation about a certain village.

(126)    Most people regularly scream. They are crazy.      (Stanley and Szabo 2000)

    Reading 1:  The people in the village are crazy.

    Reading 2:  The people in the village that regularly scream are crazy.

Assuming that, '[i]deally, one would wish to say that cross-sentential anaphora of this sort requires antecedents that are constituents (nodes) of a preceding logical form,'[30] placing the domain restriction on the noun (*Most [people$_C$]*) allows a straightforward derivation of reading 1, since the pronoun *they* simply can have *people$_C$* as its antecedent.[31] If the domain restriction variable were on the determiner (*Most$_C$ [people]*), there would be no antecedent node denoting the set of people in the village.

The second reading can also be captured if the domain restriction variable is located on the noun, e.g., if one assumes something like Neale's (1990) rule for interpreting D-type pronouns.

(127)    If x is a pronoun that is anaphoric on, but not c-commanded by a non-maximal quantifier "[Dx:Fx]" that occurs in an antecedent clause "[Dx:Fx](Gx)", then x is interpreted as "[the x: Fx & Gx]."

(Neale 1990, p. 266, rule (P5b))

Reading 2 can then be captured if we assume that the domain restriction variable is on the noun, as the application of Neale's rule will interpret *they* as *the people that live in the village and scream*. If the domain restriction variable were on the

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[30]It is unclear whether such a requirement can be upheld in general, given the existence of so-called 'complement anaphora', as in *Few congressmen admire Kennedy. They think he's incompetent* (Moxey and Sanford 1993, Nouwen 2003), in which, in contrast with Evans's (1980) original version of the sentence (*. . . They are very junior*), the pronoun *they* picks out the 'non-admirers'.

[31]Stanley (2002) emphasizes that, on their account, $C$ does not occupy a node of its own.

determiner, the only re-constructable reading would be *the people that scream*, thus falsely predicting that (126) makes a claim about all screaming people in the world (Stanley and Szabo 2000).

The second argument, brought fourth by Stanley (2002, attributed to Delia Graff Fara, p.c.), involves noun phrases that contain a superlative adjective.

(128)  a.  The tallest person is nice.                          (Stanley 2002)

   b.  $g(C) = \{x|x \text{ is a Cornell student}\}$

   c.  $\llbracket tallest \rrbracket = \lambda P.\{y|y \text{ is the tallest of all } x \in P\}$

   d.  The tallest person$_{\{x|x \text{ is a Cornell student}\}}$

      $\approx$ 'The unique individual x such that x is the tallest person of all Cornell students'

   e.  The$_{\{x|x \text{ is a Cornell student}\}}$ tallest person

      $\approx$ 'The unique individual x such that x is the tallest person and x is a Cornell student'

Assuming that the domain is restricted to students of Cornell University, and that the superlative adjective *tallest* takes the head noun as its argument and returns a set consisting of the tallest individual in the set denoted by the head noun, placing the domain restriction variable on the noun yields the intuitively correct result that we are making a claim about the tallest Cornell student. If the domain restriction variable were on the determiner, on the other hand, we would end up trying to intersect the set containing the tallest person in the world with the set of Cornell students. This, in turn, would yield the strange result that this sentence could only be truthfully (and felicitously, assuming a presuppositional view) uttered (given the assumed domain restriction) if the tallest person in the world happened to be a student at Cornell.[32]

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[32] As Stanley himself notes in a footnote, whether or not this argument goes through may depend on the exact analysis of superlatives that we adopt, since many current analyses in linguistics involve movement of the morpheme *-est* to a higher position.

A third point that Stanley (2002) presents in favor of putting the domain restriction variable on the noun is connected to the issue of comparison classes for comparative adjectives.

(129)    Smith is a remarkable violinist.                                    (Stanley 2002)

Kamp (1975, p. 152) notes that 'the noun is not always the determining factor' in construing the comparison class for an adjective like *remarkable*. An utterance of (129) may be true if talking about Smith's piano-playing at a dinner party, but not true if talking about a formal concert setting (Kamp 1975, pp. 152-153). Stanley argues that this can be captured rather nicely if we assume that the domain restriction variable is located on the noun. When talking about Smith's dinner-party performance, the domain variable restricts the noun *violinist* to, say, people that have played on similar occasions, and it does the same if talking about a formal concert setting. Naturally, someone that counts as a remarkable violinist among the first group of people need not count as one among the second. Thus, the context dependency of *remarkable* is captured because it ends up combining with different sets of violinists, depending on what the value of the domain restriction variable on the noun is.

While these arguments seem to make a fairly strong case for placing the domain restriction variable on the noun, this approach also faces some problems.[33] First, it makes false predictions for non-intersective adjectives such as *fake* and *alleged* (Breheny 2003).

(130)    a.  Every fake philosopher$_C$ is from Idaho.

         b.  $g(C) = \{x|x \text{ is American}\}$

         c.  Every fake American philosopher is from Idaho.

_____

[33]My discussion of these problems follows the one in (Kratzer 2004) rather closely.

If the domain restriction variable is on the noun and the context assigns the set of Americans to C, then (130a) should be equivalent to (130c). This is not the case, however. Consider the case of a genuine European philosopher who pretends to be American: the existence of such a person would count as a counter-example to (130c), but not to (130a) (Breheny 2003). So in addition to various convincing seeming arguments for putting the domain restriction variable on the noun, we now also have an argument for putting it higher up (e.g., either on the NP or on D).[34]

Another problem, pointed out by Martí (2003), is that in addition to domain restriction with quantificational noun phrases, we also find domain restriction with other quantificational expressions, such as adverbials (e.g., *always*). If domain restriction were to be found exclusively on nouns, then it is unclear how domain restriction with adverbial quantifiers, which do not take a noun phrase argument in the first place, can be captured. To say the least, we would need an additional mechanism for these (and probably other quantificational expressions), which seems undesirable, given that the types of effects we find are entirely parallel to those found with quantificational noun phrases (see, for example, von Fintel 1994, Martí 2003). If we assume, on the other hand, that the domain restriction variable is introduced with the quantificational expression itself (i.e., on D, in the case of quantificational noun phrases), we can provide an entirely parallel account for a wide range of quantificational expressions.

In summary, we currently have a number of good arguments supporting conflicting conclusions about where in the structure domain restriction variables are introduced. Unless we can debunk one set of these arguments, the outlook for this type

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[34]Note that there is a potential rescue for the emerging paradox with respect to the location of domain restriction: the domain restriction variable could be on an extended, but perhaps non-maximal, nominal projection, which would allow it to be below *tallest* but above *fake*. See chapter 6, section 6.4.2, for relevant discussion, in particular in connection with the interpretation of relative clauses.

of approach is not very promising.[35] Given these problems, it seems worth exploring alternative ways of accounting for domain. One such alternative is provided by situation semantics, whose account of domain restriction turns on the partiality provided by situations.

### 3.2.2   Domain Restriction via Situations

A fairly wide range of authors working with different versions of situation semantics have proposed to capture (at least certain aspects of) domain restriction effects by means of the partiality provided by situations (Barwise and Perry 1983, Berman 1987, Kratzer 1989a, Heim 1990, Cooper 1993, Cooper 1995, Recanati 1996, Recanati 2004, Percus 2000, Elbourne 2005, Wolter 2006b, Kratzer 2007). The general idea is based on the fact that in a situation semantics, sentences in general and quantificational expressions in particular are not evaluated with respect to the entire world, but rather with respect to parts of the world. It seems natural, in such a framework, to assume that quantificational claims are restricted to individuals that can be found within the part of the world, or situation, that the sentence (or individual noun phrases) are interpreted with respect to.

In the situation semantic system introduced in section 3.1, domain restriction in (strong) noun phrases is provided by the situation pronoun introduced with the determiner, which is independently needed to account for the transparent-opaque ambiguity. The central question for such noun phrases then is what the options for interpreting their situation pronoun are. As situation pronouns are seen as introducing indexed variables, both standard options for interpreting pronouns are available:

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[35]Kratzer (2004) presents further problems, including a very general one for approaches using this type of domain restriction variable. The problem is that, given the way we have implemented the domain restriction variable approach, via a free variable that typically receives a value via the assignment function, just like regular pronouns do, we would expect there to be anaphoric uses of this variable, just as we find them with pronouns. However, Kratzer (2004) shows that domain restrictions variables do not seem to be able to pick up antecedents anaphorically in the way we would expect.

they can be free or bound. Thus, they can be interpreted as a contextually salient situation (by receiving a value via the assignment function), be identified with the topic situation (via the binding operator $\Sigma$ adjoined below *topic*) or be bound by a quantifier over situations (again, via $\Sigma$). A schematic illustration of these options is provided in (131).

(131)    a. Interpretation of a situation pronoun relative to the topic situation

      i. $[s_{topic}[\ topic\ [\Sigma_1\ [[[every\ s_1]\ NP]\ VP]]]]$

      ii. $\lambda s.s \approx s_{topic}\ \&\ \forall x[\underline{NP(x)(s)}) \to VP(x)(s)]$

   b. Interpretation of a situation pronoun relative to a contextually salient situation

      i. $[s_{topic}[\ topic\ \ [[[every\ s_r]\ NP]\ VP]]]$

      ii. $\lambda s.s \approx s_{topic}\ \&\ \forall x[\underline{NP(x)(g(r))} \to VP(x)(s)]$

   c. Bound interpretation of a situation pronoun[36]

      i. $[s_{topic}[\ topic\ [OP\ [\Sigma_1\ [[[every\ s_1]\ NP]\ VP]]]]]$

      ii. $\lambda s.s \approx s_{topic}\ \&\ OPs'\ [ACC(s)(s')\ldots\forall x[\underline{NP(x)(s')} \to VP(x)(s')\ldots]$

Examples for each of these options will be sketched below for quantificational noun phrases. A more detailed account, especially with respect to how topic situations are determined, will be provided as part of the analysis of weak-article definites in chapter 4.

While this section focuses on domain restriction with determiners, it should be clear that given that adverbial quantifiers arguably involve quantification over situations, accounting for their domain restriction should fit into this system rather naturally as well (e.g., along the lines of von Fintel 1994, von Fintel 1995, von Fintel 2004, Percus 2000). In view of the problem of the location of the $C$-variable we dis-

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[36]Where 'OP' stands for a quantifier over situations.

cussed in section 3.2.1.2, it is natural to ask whether a situation semantic approach to domain restriction faces parallel problems. I will turn to this issue in section 3.2.3, where I will show that no such problems arise in the approach developed here.

Before turning to specific illustrations of the options for interpreting situation pronouns, I'd like to highlight what I take to be a fundamental conceptual advantage of capturing domain restriction effects in terms of situations. Situation semantics has been motivated by its capacity for accounting for various phenomena in natural language that are independent of domain restriction (see Kratzer 2007, for a recent overview).[37] Once we adopt a situation semantics, domain restriction effects due to the partiality of situations come for free. Put differently, we have no choice but to worry about what situations expressions are interpreted in, and once we do so, we better make sure that our theory is compatible with empirical facts about domain restriction. While it is inevitable for the partiality of situations to give rise to domain restriction effects, however, it is not certain from the outset that all such effects are due to situations. But working in a situation semantics, the general research strategy should be to explore exactly what domain restriction effects we can capture with the independently motivated mechanisms of our semantic theory before introducing any additional machinery.[38]

### 3.2.2.1 Interpreting Situation Pronouns Relative to the Topic Situation

The first possibility for interpreting the situation pronoun on a noun phrase that I will consider is that it is identified with the topic situation, i.e., the situation that the sentence is about (intuitively speaking; see chapter 4 for a specific proposal for

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[37]Given that, at least on the view I would take, events are simply a special type of situation, we can include event semantics and its motivations here as well.

[38]As Kratzer (2007) notes, domain restriction effects as a whole may come about from a number of mixed sources (including purely pragmatic ones), but still, it is preferable to have general, independently needed mechanisms for as many of those sources as possible.

determining what the topic situation of a given sentence is). Let's look at a first example illustrating such a case.

(132)   Since it had snowed during the night, everyone shoveled their driveway.

(Kratzer 2004)

In analogy with the notion of topic times (section 3.1.2.2), Kratzer suggests that the quantifier *everyone* in (132) is interpreted with respect to a past topic situation. Note that, as Kratzer emphasizes, it would not be enough to interpret this sentence with respect to a past topic time - we are not talking about all the places in which it had snowed at a past time $t$ and all the people in those places. Rather, we are talking about some specific situation in the past in which it first snowed and in which all the people in that situation later shoveled their driveway.

The way this interpretation comes about in our semantics is illustrated for the parallel example in (133).

(133)    a. We were in the kitchen, and John told a joke.

b. Everyone laughed.

c. $[s_{topic}[$ *topic* $[\Sigma_1 [[[every\ s_1]\ person\ ]\ laughed\ ]]]]$

d. $[\![(133c)]\!] = \lambda s.\ [s \approx s_{topic}\ \&\ \forall x[\text{person}(x)(s) \rightarrow \text{laugh}(x)(s)]]$

The sentence in (133b) is understood to claim that every person present in the kitchen as John told his joke laughed. In other words, the situation variable introduced with the quantificational determiner *every* is identified with the topic situation, which, intuitively speaking, consists of the kitchen and the people in it at the relevant time. In order to derive this interpretation, the logical form of the sentence will contain a $\Sigma$-operator that is coindexed with the situation argument on the determiner. This will ensure that the quantificational noun phrase *every person* will be interpreted relative to the same situation as the the verb *laughed*. What a speaker claims when uttering (133b) in the provided context, according to our theory, is that

the topic situation (more precisely, each of its counterparts) has a certain property, namely that it is a situation in which every person in it laughed.

### 3.2.2.2 Interpreting Situation Pronouns Relative to a Contextually Salient Situation

Evaluating quantifiers relative to the topic situation corresponds to a global mechanism of domain restriction at the level of the entire sentence. As we saw in our discussion above, we need more flexibility than that to account for cases where several quantifiers within one sentence have to be interpreted relative to distinct domains. The example in (134), due to Soames (1986) (who provides it as a variation of an example by Barwise and Perry (1983)), is a case in point.

(134) Everyone is asleep and is being monitored by a research assistant.

As Kratzer (2007) discusses (in response to Soames' criticism of situation semantic accounts of domain restriction that only make use of topic situations), this sentence requires us to interpret the situation pronoun on the quantifier *everyone* relative to a contextually supplied situation to prevent the implausible interpretation that the research assistants doing the monitoring are asleep as well. The interpretation of (134) could then be as follows (adapted to our system from Kratzer 2007):[39]

(135)   a.  $[s_{topic}[topic\ [[[every\ s_r]one][[is\ asleep][and\ being\ monitored\ by\ an\ RA]]]]]$

   b.  $[\![(135a)]\!]^g = \lambda s.\ [s \approx s_{topic}\ \&\ \forall x[\text{person}(x)(g(r)) \to$

   $[\text{asleep}(x)(s)\ \&\ \exists y\ [\text{RA}(y)(s)\ \&\ \text{monitoring}(y)(x)(s)]]]]$

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[39]Note that Kratzer does not include the topic situation in her formulation of this formula. Kratzer includes a condition requiring the situation introduced by the situation pronoun to be part of the topic situation. While this is plausible in the case at hand, I don't believe this should be a general feature of the meaning of *every*, and I therefore do not include it here. Note also that the entry for the universal quantifier here is still the simplified version from above, which will have to be complicated below when discussing more complex sentences.

Crucially, the situation pronoun that comes with *everyone* is assigned a value by the assignment function here, i.e., it is interpreted relative to a contextually supplied situation. Another example illustrating the need for interpreting situation pronouns relative to contextually supplied situations comes from Cooper (1995).

(136)   Context: Suppose that we have a university department whose members consist of linguists and philosophers. In one particular year two people are coming up for tenure, a linguist and a philosopher, but the department is only allowed to recommend one of them. To the shame of this department...

   *Every linguist voted for the linguist and every philosopher for the philosopher.*

(Cooper 1995, ex. (19))

This example shows that the universal quantifier DPs and the definites have to be interpreted with respect to different situations, since otherwise, as Cooper puts it, the sentence would 'describe a situation in which the department had exactly two members, a linguist and a philosopher, who voted for themselves' (Cooper 1995), which clearly doesn't match our intuitive understanding of the sentence. The analysis of (136) will essentially be parallel to that of (134) (see chapter 4 for a discussion of a German variant of this example).

One important question about contextually supplied situations is what makes a situation available (and salient) in a context. In our analysis, the problem is completely analogous to the question of what individual a free pronoun can pick out, since in both cases, the assignment function $g$ assigns a value to an index. Some possibilities for what situations might be prominent candidates for being contextually salient are discussed in chapter 4.

### 3.2.2.3   Covarying Interpretations of Quantifier Domains

One advantage of the domain restriction variable accounts considered earlier is that they are able to capture cases where the $C$-variable was bound, i.e., where the

domain of a lower quantifier covaried with another quantifier higher up. In order to capture this option in a situation semantic account of domain restriction, we need to allow the higher quantifier to somehow access the restrictor argument of the lower quantifier. We need two ingredients to achieve this. First, quantificational determiners need to introduce their own quantification over situations. This is independently motivated, as will be discussed in detail in section 3.3. Secondly, Kratzer (2004) proposes that we can use so-called 'matching functions' (Rothstein 1995) to capture the effect of covarying domains. Matching functions are independently needed as well. Rothstein (1995) introduces them to account for matching effects with adverbial quantification, as in the following example.

(137)   Every time the bell rings, Mary opens the door.

<div align="right">(Rothstein 1995)</div>

Crucially, these types of sentences require there to be at least as many door-opening events as there are door-bell ringing events. This is not easy to capture, as the initially plausible analysis along the lines of the paraphrase 'For every bell-ringing, there is a door-opening by Mary' allows there to be just one door-opening with which all of the bell-ringings are said to be associated. But for (137) to be true, Mary must have opened the door at least once for each bell-ringing, so there must be different door-openings for the different bell-ringings.

Rothstein proposes that these sentences involve a matching function in the nuclear scope (which she takes to be introduced by a null preposition that comes with the adverbial phrase). The final interpretation, couched in an event semantics, that she assigns to (137) is the following:

(138)   $\forall e[\text{RING}(e) \ \& \ Th(e) = b \rightarrow$

$\exists e'[\text{OPEN}(e') \ \& \ Ag(e') = m \ \& \ Th(e') = d \ \& \ M(e') = e]]$

The sentence thus quantifies over bell-ringing events and says that there is a door-opening event for each bell-ringing event, and furthermore that each door-opening event is mapped onto the bell-ringing event in question by the matching function. The last part ensures that there are at least as many door-openings as there are bell-ringings, since $M$ is a function.

Kratzer (2004) adapts Rothstein's analysis and proposes that universal quantifiers themselves come with a matching function. (139) is a version of her lexical entry for *every*, adapted to our system.[40]

(139)   $[\![every]\!] = \lambda s_r.\lambda P.\lambda Q\lambda s.\,\forall x[P(x)(s_r) \rightarrow \exists s_1[s_1 \leq s\ \&\ M(s_1) = x\ \&\ Q(x)(s_1)]]$

A sentence with two universal quantifiers, where the domain of the lower quantifier covaries with the higher one, is then interpreted as follows:[41]

(140)   a.  Everyone finished every job.

   b.  $\lambda s.s \approx s_{topic}\ \&\ \forall x[\text{person}(x)(s) \rightarrow$

$\exists s_1[s_1 \leq s\ \&\ M(s_1) = x\ \&\ \forall y[\text{job}(y)(s_1) \rightarrow\ \text{finished}(y)(x)(s_1)]]]$

(adapted from Kratzer 2004)

In order to derive this interpretation in our system, the situation pronoun on the lower *every* has to be bound by a $\Sigma$ adjoined below *everyone*.[42] This requires the type-variant of $\Sigma$ in (141), as it has to combine with an XP of type $\langle e, st \rangle$ in such cases. The structure of (140) from which the interpretation above is derived is provided in (142).

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[40]This is not the final word we will have to say about *every*, as further complications are needed to account for donkey sentences.

[41]Presumably, the lower *every* introduces a matching function of its own as well, but in cases where it doesn't restrict the interpretation in any way, I will omit it. I also omit the existential quantification over situations in the nuclear scope of the lower *every* here.

[42]For ease of presentation, I will assume that the situation pronoun on the higher quantifier is bound by a $\Sigma$ below *topic* as well. A detailed analysis of an example where the restrictor of a quantifier is interpreted relative to a contextually supplied situation is presented in chapter 4, section 4.3.2.

(141)  $[\![\Sigma_n \text{ XP}]\!]^g = \lambda x.\lambda s.[\![\text{XP}]\!]^{g[s_n \to s]}(x)(s)$    Büring (2004), for XPs of type $\langle e, st \rangle$

(142)  $[_{s_{topic}}$ [$topic$ [$\Sigma_r$ [[$Every\ s_r$] $one$ ][$\Sigma_{r'}$ [$finished$ [[$every\ s_{r'}$] $job$]]]]]].

On the analysis in (140), the sentence says that for every person in $s$ there is a situation $s_1$ in which he or she finished every job in $s_1$. Furthermore, these $s_1$-situations have to be different ones for each person $x$ in $s$, because the matching function has to map $s_1$ onto $x$. Since $M$ is a function, it can only map each of the $s_1$-situations to exactly one person, thus there has to be a different situation of the relevant kind for every person.

Note that there is an interesting difference between the effect of the matching function here and in the cases discussed by Rothstein. While (137) requires there to be a different door-opening for each bell-ringing, (140) does not require an interpretation where different people have different jobs to finish. They could all have the same set of jobs, or partially overlapping ones, or completely different ones.[43]  This is not prevented by the requirement introduced by the matching function that there be different situations in which each person finished every job, because the situations will minimally differ, in any case, in terms of what individuals must be part of them (in order to finish a job in $s$, you have to be part of $s$).

How exactly the domain for each of the cases quantified over is determined therefore is entirely dependent on what the matching function stands for. Rothstein (1995) assumes it is provided by the context, i.e., that $M$ is a contextually supplied variable. For (140), it might be the function that assigns jobs to people, for example. More

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[43]Different interpretations may be more plausible depending on the choice of the VP, of course:

(i)   Everyone looked at every picture.
(ii)  Everyone ate every cookie.

In (i), it may be quite natural to understand everyone to have seen the same set of pictures, whereas in (ii), it more or less has to be a different set of cookies for each person.

specifically, to account for the possibility of partial or total overlap of jobs for various people, it will have to be something like the following:

(143)  $M(s) = x$ iff $s$ is a situation that contains every job assigned to $x$ as well as

$x$, but no other relevant individual $y$.

To render the appropriate interpretation of (140), $s$ has to contain every job assigned to $x$. It also has to contain $x$, in case there is another individual that has the same set of jobs. Since $M$ is a function, it has to assign exactly one value to each element in its domain. If two individuals have the same jobs, we can only map the situation containing these jobs to one of them, so we have to specify as part of the function that x is part of the situation. For the same reason, we have to make sure that no other relevant individuals are in the situation, where 'other relevant individual' means another element in the range of $M$.

It is worth noting that, as Cooper (1995) points out, a situational account of covarying quantifier domains may be able to account for cases that cannot straight-forwardly be captured on a $C$-variable approach to domain restriction. He offers the example in (144).

(144)  Whatever John does, most people turn up late for the experiment.

(Cooper 1995, ex. (25c))

While a full analysis of this example goes beyond the present discussion, it is plausible to see it as involving quantification over situations that have a contextually supported property, e.g., situations in which John tries different methods for schedul-ing participants for his experiment. The quantifier *most people* is then interpreted relative to these situations, i.e., the situation pronoun on *most* is quantificationally bound. A $C$-variable account, on the other hand, would seem to face some difficulties

in finding an appropriate analysis of $C$ that would allow for the relevant covarying interpretation.[44]

Summing up this section, introducing matching functions, which are independently needed to account for matching effects with adverbial quantification (Rothstein 1995), as well as quantification over situations with quantificational determiners (which is also independently motivated), provides us with a method for modeling covarying domains in a situation semantic approach to domain restriction.

### 3.2.2.4  Additional Motivations for Situational Domain Restriction

In the preceding sections, we have seen that situational domain restriction can account for the core data that $C$-variable accounts can account for. Before closing this subsection, I'd like to highlight some further observations by Evans (2004) that seem to make a situation semantic approach to domain restriction even more promising. Consider the following set of examples.

(145)  a. Juan drove up to the busy tollbooths. The toll taker was rude.

   b. # Juan looked at the busy tollbooths. The toll taker was rude.

(Evans 2004)

(146)  a. Meredith stepped up on the ladder. The rung broke.

   b. # Meredith stepped up on the ladder. The rung was aluminum.

(Evans 2004)

What is interesting about these examples from Evans (2004) is that the contrast in (145) seems related to the way the situations are structured in the two examples. If Juan is driving up to the toll booths, we can understand *the toll taker* to be the toll taker in the booth that he eventually ends up at. But if he's just looking, there's

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[44]Further evidence against domain restriction via a $C$-variable will be presented in connection with the analysis of larger situation uses in chapter 5.

no clear way of understanding which toll taker is said to be rude. In (146), on the other hand, what seems to matter is that in the first version, the predicate of the second sentence is episodic, whereas it is generic in the second version.

While the details of analyzing these examples would need to be spelled out carefully, it seems like a situation-based approach has a better shot at accounting for these types of phenomena than one based on domain restriction variables. For on the latter, it is not clear at all why temporal and aspectual features of a sentence should have the types of effects on domain restriction that they seem to have.

### 3.2.3 The Location of Situational Domain Restriction

In our discussion of domain restriction variables in section 3.2.1, we encountered a number of arguments that related to the position of the $C$-variable. In particular, Stanley and Szabo (2000) and Stanley (2002) provided arguments based on NP anaphora, superlatives, and adjectives like *remarkable* that they took to speak in favor of putting the $C$-variable on the head noun. Examples by Breheny (2003), on the other hand, involving adjectives like *fake* and *alleged* seemed to require the $C$-variable to be introduced higher up in the structure. Finally, Martí (2003) points to parallel domain restriction phenomena with adverbials that can't be captured in a parallel way if the domain restriction is located on the noun, rather than the determiner. Following Kratzer (2004), we therefore concluded that $C$-variable accounts face a difficult problem with respect to the location of the $C$-variable in the structure. Given these problems, we have to investigate whether a situation semantic approach to domain restriction runs into parallel problems. In the following, I will show for each of the relevant arguments that the issue does not arise for the situational approach developed here.

### 3.2.3.1 Superlative Adjectives

I have argued in section 3.1.2.1 that situation pronouns are introduced at the level of the DP. Stanley (2002) used examples involving superlative adjectives to argue against introducing the $C$-variable with the determiner. Let us consider, then, whether the location of situation pronouns bears on the interpretation of the relevant examples. The lexical entries for the different options to be considered naturally will have to differ for these cases, but the variations are straightforward.

The calculations below for the noun phrase *the tallest student* show that the denotation of the DP as a whole comes out the same, no matter whether we introduce the situation pronoun with the determiner, the noun, or the noun phrase. For the sake of argument, I'm assuming the same, simple denotation for *tallest* as Stanley (2002). A more compositional analysis of superlatives that involves movement of *-est* to a higher position may render the argument without any force for the $C$-variable in the first place (as Stanley himself acknowledges), but even if we assume a simple meaning that applies low in the noun phrase, the position of the situation pronoun does not matter.

(147) Situation Pronoun on noun:

$\iota x.x$ is the tallest of all $y \in \{z | z$ is a student in $s\}$

$\lambda P_{\langle e,t \rangle}.\iota x.P(x)$     $\lambda x.x$ is the tallest of all $y \in \{z | z$ is a student in $s\}$
*the*

$\lambda P.\lambda x.x$ is the tallest of all $y \in \{z | P(z)\}$     $\lambda x.x$ is a student in $s$
*tallest*

$\lambda s'.\lambda x.x$ is a student in $s'$     $s$
*student*

(148)  Situation Pronoun on D:

$\iota x.x$ is the tallest of all $y \in \{z|z$ is a student in $s\}$

$\lambda P_{\langle e,st\rangle}.\iota x.P(x)(s)$     $\lambda x.\lambda s'.x$ is the tallest of all $y \in \{z|z$ is a student in $s'\}$

$\lambda s''.\lambda P.\iota x P(x)(s'')$    $s$        $\lambda P.\lambda x.\lambda s'.x$ is the        $\lambda.x.\lambda s.x$ is
      *the*                    tallest of all $y \in \{z|P(z)(s')\}$     a student in $s'$
                                       *tallest*                  *student*

(149)  Situation Pronoun on NP

$\iota x.x$ is the tallest of all $y \in \{z|z$ is a student in $s\}$

$\lambda P_{\langle e,t\rangle}.\iota x.P(x)$               $\lambda x.x$ is the tallest of all $y \in \{z|z$ is a student in $s\}$
   *the*

                  $s$     $\lambda s'.\lambda x.x$ is the tallest of all $y \in \{z|z$ is a student in $s'\}$

$\lambda P.\lambda s'.\lambda x.x$ is the tallest of all $y \in \{z|P(z)(s')\}$    $\lambda s'.\lambda x.x$ is a student in $s'$
                 *tallest*                              *student*

Superlative adjectives then do not place any restrictions on where we should introduce the situation pronoun inside of the noun phrase.

### 3.2.3.2  Comparison Classes

The second argument to consider is that of comparative adjectives and the effect of domain restriction on their comparison class. Recall that (129) can be uttered truly relative to Smith's dinner party performance but at the same time be false relative to his performance at Carnegie Hall, the idea being that in those two cases we are comparing him to other violinists that have played in the same place.

(129)  Smith is a remarkable violinist.                            (Stanley 2002)

As in the case of superlative adjectives, it seems not to matter where in the structure we place the situation pronoun, if we assume that there is one at all.[45]

(150) Situation Pronoun on noun:[46]

$\lambda Q.\lambda s.\exists x.x$ is remarkable w.r.t. $\{z|z$ is a violinist in $s''\}$ & $Q(x)(s)$

$\lambda P.\lambda Q.\lambda s.$     $\lambda x.x$ is remarkable w.r.t. $\{z|z$ is a violinist in $s''\}$
$\exists x.P(x)$ & $Q(x)(s)$

      $\lambda P.\lambda x.x$ is remarkable    $\lambda.x.x$ is a violinist in $s''$
      w.r.t. $\{z|P(z)\}$

          $\lambda s'.\lambda x.x$ is a violinist in $s'$      $s''$

(151) Situation Pronoun on D:

$\lambda Q.\lambda s.\exists x.x$ is remarkable w.r.t. $[\![violinist]\!]$ in $s''$ & $Q(x)(s)$

$\lambda P.\lambda Q.\lambda s.\exists x, P(x)(s'')$ & $Q(x)(s)$     $\lambda x.\lambda s.x$ is remarkable w.r.t. $[\![violinist]\!]$ in $s$

  $\lambda s'.\lambda P.\lambda Q.\lambda s.$          $s''$    $\lambda P.\lambda x.\lambda s.x$ is      $\lambda x.\lambda s.x$ is
  $\exists x, P(x)(s')$ & $Q(x)(s)$             remarkable w.r.t $P$ in $s$    a violinist in $s$

(152) Situation Pronoun on the NP

$\lambda Q.\lambda s.\exists x.x$ is remarkable w.r.t. $[\![violinist]\!]$ in $s''$ & $Q(x)(s)$

    $\lambda P.\lambda Q.\lambda s.$     $\lambda x.x$ is remarkable w.r.t. $[\![violinist]\!]$ in $s''$
    $\exists x.P(x)$ & $Q(x)(s)$

         $s''$     $\lambda s'.\lambda x.x$ is remarkable w.r.t. $[\![violinist]\!]$ in $s'$

           $\lambda P.\lambda s'.\lambda x.x$ is      $\lambda s'.\lambda x.x$ is
           remarkable w.r.t. $P$ in $s'$    a violinist in $s'$

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[45]If we follow Musan (1995) and don't assume a situation pronoun in weak quantifiers, there may not be a situation pronoun here at all.

[46]Note that this option turns out to be a non-starter, since non-intersective adjectives such as *remarkable* have to take a property as their argument, as will be discussed below.

While all of these seem roughly equivalent at first sight, the option of putting the situation pronoun on the noun turns out to be a non-starter. *Remarkable* is a non-intersective adjective: If John is a remarkable violinist and John is a pianist, it does not follow that John is a remarkable pianist. Such adjectives are generally assumed to require a property, rather than a set, as an argument, precisely to avoid this incorrect conclusion. For even in a situation in which the set of pianists is identical to the set of violinists, being a remarkable violinist is different from being a remarkable pianist, which could not be captured if *remarkable* could only operate on sets, rather than the respective properties. From the perspective of a situation semantic account, putting the resource situation pronoun on the noun itself, to keep the parallel with Stanley and Szabo's (2000) approach, therefore is not feasible to begin with, because on that analysis, all that *remarkable* can access is a set. But if the situation pronoun is introduced by the determiner or at the level of the noun phrase, the adjective combines with a property, which gives us the desired interpretation.

It is not clear whether we can capture the determination of the comparison class via situational domain restriction if we assume that there is no situation pronoun present in the noun phrase at all. The meaning of the noun phrase as a whole would then be as follows, where all predicates would end up being evaluated relative to the topic situation:

(153)   $\lambda Q.\lambda s.\exists x.x$ is remarkable w.r.t. $[\![\textit{violinist}]\!]$ in $s$ & $Q(x)(s)$

Perhaps one could build in some additional restrictions into the adjective meaning to ensure that the comparison class is somehow derived from situations sufficiently similar to the topic situation in this case. But I will not pursue this problem further here, as it suffices for our purposes that adjectives like *remarkable* provide no argument for placing the situation pronoun on the noun. In fact, they provide one against putting it there.

### 3.2.3.3 NP Anaphora

The final point that we considered as an argument in favor of placing the $C$-variable on the noun, brought forth by Stanley and Szabo (2000), involved NP Anaphora in sentences like the following (assumed to be uttered in a conversation about a certain village).

(154) Most people regularly scream. They are crazy.

The crucial point was that the pronoun in the second sentence can be understood to pick out all the people in the domain we are talking about (e.g., those in a certain village), or the regular screamers amongst these people. Stanley and Szabo (2000) argue that this can be easily captured if the $C$-variable is placed on the noun, as the pronoun then can relate back to the meaning of a preceding terminal node (they assume that the domain restriction variable is part of the nominal node).

What does this argument look like from a situational perspective? I believe that, once again, it does not provide any restrictions on where in the noun phrase the situation argument should be introduced. Assuming the pronoun is a D-type pronominal description, its meaning will be something like $\iota x.\text{people}(x)(s)$,[47] no matter whether the situation pronoun is introduced with the noun or the determiner.

As far as the question of accounting for the ambiguity is concerned, there may be several options. Either we come up with a plausible story that specifies how the noun phrase is evaluated with respect to different situations in the two cases (e.g., the topic situation construed as the village that we are talking about, or the sum of subsituations in which screaming takes place), or we integrate some additional non-situational domain restriction mechanism to make the description more elaborate. While accounting for anaphoric relations purely in terms of situations is no simple feat,

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[47]Where the $\iota$-operator gets a suitable maximality interpretation for the plural noun.

what matters foremost for our current discussion is that there is no argument with respect to the location of situation pronouns based on these types of NP anaphora.

### 3.2.3.4  Intensional Adjectives

Turning next to intensional adjectives like *fake* and *alleged*, the point made with respect to the *C*-variable in section 3.2.1.2 carries over to situational domain restriction: situation pronouns can't be on the noun itself if we want to account for the interpretation of the relevant noun phrases.

(155)   the fake philosopher

The reason is slightly different from the situational perspective, however, and, in fact, completely parallel to what we saw for *remarkable* above. *Fake* is an intensional adjective and has to combine with a property, not a set. If we put a situation pronoun on the noun before it combines with the adjective, then it will only provide a set for the latter to manipulate. As was the case for *remarkable*, it does not matter, though, whether we introduce the situation pronoun with the determiner or at the level of the noun phrase.

### 3.2.3.5  Conclusion

Let us summarize our findings: Superlatives and NP anaphora do not seem to provide any argument for where to put situation pronouns. Adjectives like *remarkable* and *fake* provide evidence against putting situation pronouns on the noun, but are compatible with putting it on the noun phrase or the determiner. Note that the parallels with adverbial quantification also are not affected by where in the noun phrase we put situation pronouns, as those can have their own situational domain restriction.

As far as the domain restriction facts are concerned, then, we could place resource situation pronouns either on the noun phrase or on the determiner. Given the evidence we saw in section 3.1.2.1 for the latter choice, I take it to be the adequate one.

### 3.2.4  Summary

In this section, I laid out the basic framework for capturing domain restriction in the type of situation semantics that was introduced in the previous section. At the core of the proposal are the various options for interpreting situation pronouns inside of noun phrases: they can be identified with the topic situation (by being bound below *topic*) or a contextually salient situation (by receiving a value via the assignment function), or be quantificationally bound by a quantifier over situations. To account for the last case, we included the independently motivated assumptions that quantifiers like *every* introduce quantification over situations as well as a matching function in their nuclear scope. Finally, we saw that a problem parallel to that of the location of the $C$-variable (discussed in section 3.2.1.2) does not arise in a situational approach to domain restriction based on a situation pronoun inside of noun phrases, and that the data from Stanley and Szabo (2000) and Stanley (2002) are therefore consistent with the proposal of introducing the resource situation pronoun with the determiner (presented in section 3.1.2.1).

## 3.3   Issues with Quantifying over Situations

In the situation semantic analysis of covarying domains in section 3.2.2.3, we introduced the idea that quantificational determiners introduce quantification over situations. Adverbial quantifiers and, by extension, conditionals (adopting the common view that *if*-clauses restrict (covert or overt) adverbial quantifiers) are standardly analyzed in terms of quantifying over situations (Berman 1987, Heim 1990, von Fintel 1994, von Fintel 1997/2005) as well. In light of the important role that covarying

interpretations of definites in constructions involving quantification over situations will play in the analysis of the German definites in the chapters to come, we need to consider some of the issues that arise for such quantification, as well as the remedies proposed for these problems in the literature (for more detailed discussions of these issues, see von Fintel 1995, von Fintel 1997/2005, Kratzer 2007).

At the core of the difficulties with counting situations lies the part structure we are assuming for them. Take a simple case of adverbial quantification:

(156)    John climbed Mt. Holyoke twice.                          (von Fintel 1995)

This sentence can't just be taken to say that there are two situations in which (156) is true (von Fintel 1995). For even if John only climbed Mt. Holyoke once, there are many situations in which he did so, e.g., a situation in which he climbs Mt. Holyoke and has dinner afterwards, a situation in which he climbs Mt. Holyoke and sleeps really well the following night, etc. What seems to be needed is some notion of minimality that ensures that we are counting situations in which he climbed Mt. Holyoke that contain no parts that are somehow irrelevant to his climbing Mt. Holyoke.

One formulation of such a minimality condition comes from Berman (1987) and Heim (1990), who use it for their situation semantic analysis of donkey sentences.

(157)    Minimality

$MIN(p)(s)$ iff $p(s)$ & $\neg\exists s'[s' \leq s$ & $s' \neq s$ & $p(s')]$

's is a minimal situation in which $p$ is true iff there is no proper part of $s$ in which $p$ is true'

However, as discussed by von Fintel (1997/2005) and Kratzer (2007)(there also are various earlier discussions by Kratzer, e.g. Kratzer 1990, Kratzer 1998, Kratzer 2002),

this simple notion of minimality is not enough. Problems arise in various cases, e.g. with mass nouns and certain modified quantifier phrases.[48]

(158)   Often, when John runs, he wears his old tennis shoes.

(von Fintel 1995)

(159)   a.  When snow falls around here, it takes 10 volunteers to remove it.

b.  Whenever there are between 20 and 2000 guests at a wedding, a single waiter can serve them.

(Kratzer 2007)

It is not clear what a minimal situation in which John runs or in which snow falls is, and to the extent to which we could come up with some such notion, it wouldn't characterize the right kind of situation that is being quantified over in (158) and (159a). Similarly, (159b) does not just quantify over minimal situations in which the restrictor is true, as that would result in quantifying only over weddings with exactly 20 guests.

To capture the interpretation of examples like these, we need a more flexible notion of minimality, one that avoids quantifying over situations that are too small in cases like (159a) and (159b). As von Fintel (1997/2005) puts its, we have to somehow find a way of quantifying over situations that contain no irrelevant parts, but at the same time make up 'chunks' that are in some sense maximal. In the case of (159a), it seems like we should count something like maximally self-connected snow-falling situations (von Fintel 1995, von Fintel 1997/2005, von Fintel 2004), and in (159b), we should make sure to count situations that contain weddings with 20 to 2000 guests. With respect to the latter, we also have to make sure that each wedding is only counted once: a wedding with 21 guests shouldn't count as a (partial) wedding with 20 guests and another one with 21, etc.

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[48]Another case is that of atelic predicates. Negation gives rise to further problems (Kratzer 2007).

The solution to these problems proposed by Kratzer proceeds in two steps. First, it introduces a notion of exemplification, defined as follows.

(160)    Exemplification

a. A situation $s$ exemplifies a proposition $p$ iff whenever there is a part of $s$ in which $p$ is not true, then $s$ is a minimal situation in which $p$ is true.

b. A situation is a minimal situation in which a proposition $p$ is true iff it has no proper parts in which $p$ is true.

(Kratzer 2007)

Note that exemplification can either hold because $p$ holds in all subsituations of $s$ or because $s$ is a minimal situation in which $p$ holds. This notion is more liberal than that of minimality above, at least for cases where we are dealing with homogeneous domains, such as in (159a): since there are no minimal snow-falling situations, any situation in which snow falls and which contains nothing but snow falling will exemplify the proposition expressed by *Snow falls*.

The second step is to acknowledge that certain noun phrases generally have a maximalized interpretation, which means that the proposition derived from the restrictor in such cases is slightly different from what we might first take it to be. Maximalized interpretations of certain types of noun phrases have been discussed at length by various authors (Evans 1977, Kadmon 1987, Kadmon 1990, Kadmon 2001, Schein 1993, Landman 2000, Landman 2004), e.g., in connection with examples like (161) (Kratzer 2007).

(161)    a. There was more than 5 tons of mud in this ditch. The mud was removed.

b. There were between two and four teapots on this shelf. They were defective.

The second sentence in each of these cases is understood to make a claim about all of the mud and all of the teapots mentioned in the first sentence. Arguably, this

is due to the pronoun being anaphoric to a maximalized interpretation of the noun phrases *more than 5 tons of mud* and *between two and four teapots on this shelf.*

Applying this insight to quantificational examples such as (159b), their analysis involves both a notion of minimality, in the form of exemplification (which ensures the situations counted don't contain any irrelevant parts), and a notion of maximality, introduced by the noun phrase *between 20 and 2000 guests.* The restrictor of (159b) then can be taken to express the proposition in (162).

(159b)   Whenever there are between 20 and 2000 guests at a wedding, a single waiter can serve them.

(162)   $\lambda s.\exists x \ [x = \sigma z[\text{guest}(x)(s) \ \& \ \exists y[\text{wedding}(y)(s) \ \& \ AT(y)(x)(s)]] \ \&$

$20 \leq |\{z : \text{guest}(z)(s) \ \& \ \exists y[\text{wedding}(y)(s) \ \& \ AT(y)(z)(s)]\}| \leq 2000]$

Assuming that (159b) quantifies over situations that exemplify the restrictor will then yield the desired interpretation where any wedding with 20 to 2000 guests will be counted exactly once, as we will be quantifying over minimal situations including weddings with 20-2000 guests that contain the maximum number of guests at the wedding.

The notion of exemplification also provides an adequate analysis of donkey sentences along the lines of the proposals based on simple minimality in the literature (Berman 1987, Heim 1990, Elbourne 2005). Adapting the notation used for minimality above to exemplification, as in (163), a conditional donkey sentence (164) will be analyzed along the lines of (165):

(163)   $EX(p)(s)$

'$s$ exemplifies the proposition $p$'

(164)   If a farmer owns a donkey, the farmer beats the donkey.

(165)  $\lambda s.\forall s_1[[s_1 \leq s \ \&$

$\quad\quad EX(\lambda s'.\exists x \exists y[\text{farmer}(x)(s') \ \& \ \text{donkey}(y)(s') \ \& \ \text{own}(x)(y)(s)])(s_1)] \rightarrow$

$\quad\quad \exists s_2[s_1 \leq s_2 \leq s \ \& \ \text{beat}(\iota x.\text{farmer}(x)(s_2))(\iota y.\text{donkey}(y)(s_2))(s_2)]]$

In order to achieve a parallel result for donkey sentences with a quantificational determiner and a relative clause, quantificational determiners will have to be assumed to introduce quantification over exemplifying situations in their restrictor as well. The interpretation of (95a) should then be something like (166):

(95a)  Every farmer that owns a donkey beats the donkey.

(166)  $\lambda s.\forall s_1 \forall x[[s_1 \leq s \ \&$

$\quad\quad EX(\lambda s'.\exists y[\text{farmer}(x)(s') \ \& \ \text{donkey}(y)(s') \ \& \ \text{own}(x)(y)(s)])(s_1)] \rightarrow$

$\quad\quad \exists s_2[s_1 \leq s_2 \leq s \ \& \ \text{beat}(x)(\iota y.\text{donkey}(y)(s_2))(s_2)]]$

The compositional analysis of such sentences will be spelled out for examples with the weak article in chapter 4.

There are further problems relating to the individuation of the things to be counted when quantifying over situations that we need to be aware of. As von Fintel (1997/2005) points out, however, these problems are by no means restricted to situation semantics. He cites examples from Bennett (1988), which illustrate some of the difficulties in individuating events, such as fires and conferences. While the former would seem to crucially involve some notion of spatio-temporal contiguity (which perhaps could be implemented in terms of a mereo-topology, Casati and Varzi 1999, Kratzer 2007) the latter can consist of non-contiguous parts.

As Kratzer (2007) points out, even seemingly simple cases of counting spatiotemporal objects call for fairly involved methods of individuation and maximality. Take the example in (167):

(167)  There is a teapot.

Kratzer points out that a situation exemplifying the proposition expressed by this sentence presumably should simply be a minimal situation containing a teapot, i.e., a situation that has no proper parts in which there is a teapot. But if we chip off a small piece, what remains is still a teapot. Does that mean that either this is a new teapot or not a teapot at all, since we assumed that the situation containing the (unchipped) teapot did not have any proper parts containing a teapot? Neither one of these options seems intuitively right, as we are still dealing with the same teapot. But if it's the same teapot, then there must have been a smaller teapot (in fact, a multitude thereof) all along. How can we reconcile that with the fact that we would count the teapot (with or without the chipped off piece) as only one teapot? Again, some appeal to maximally self-connected spatio-temporal entities seems to be in order, much like in the case of events like fires. But again, not all objects adhere to such principles (Kratzer mentions things like Bikinis and three-piece suits as counter-examples).

The bottom line of the present discussion is that we need to acknowledge a range of counting criteria for both individuals and events (whether or not we are working in a situation semantics). Some may involve a notion of spatio-temporal contiguity, whereas others do not. What all of them seem to share, as Kratzer (2007) points out, is the fundamental counting principle in (168).

(168)  Counting Principle

A counting domain cannot contain non-identical overlapping individuals.

(Casati and Varzi 1999)

Interestingly, this principle employs a notion of part-hood, since for two individuals to overlap, they have to have a common part. The relation between parts and wholes will play an important role in the analysis of certain uses of definite descriptions, namely cases of part-whole bridging and larger situation uses with weak-article definites (examples of which we already saw in chapter 2).

## 3.4  Summary

The main goal of this chapter was to develop a situation semantic analysis of domain restriction that can serve as a basis for our analysis of definite descriptions in the following chapters. In section 3.1, I introduced a possibilistic situation semantics that assumes syntactically represented situations, in the form of situation pronouns inside of noun phrases and topic situations at the top of clauses. Section 3.2 argued that a situational approach is to preferred over a $C$-variable approach to domain restriction, as it relies solely on independently motivated mechanisms and avoids the problem of the location of variables relevant for domain restriction that $C$-variable approaches face. Finally, I considered some of the challenges that arise in a theory that quantifies over situations. These challenges can be met by utilizing Kratzer's (2007) notion of exemplification in (163), in connection with independently needed assumptions about counting. With this general theoretical foundation in place, we can now turn to the analysis of German definites.

# CHAPTER 4

# SITUATIONAL DOMAIN RESTRICTION AND WEAK-ARTICLE DEFINITES

This chapter presents an analysis of weak-article definites based on the situation semantic framework introduced in chapter 3. The options for interpreting weak-article definites derive from the options for interpreting the situation pronoun they introduce. The latter are as discussed in chapter 3: situation pronouns can stand for a contextually salient situation (by receiving a value via the assignment function), be identified with the topic situation (via a $\Sigma$-binder below *topic*), or be bound by a quantifier over situations. I begin, in section 4.1, by introducing a proposal for how topic situations are derived from questions and evaluating it in light of some basic data involving weak-article definites. Cases where the situation pronoun is interpreted as providing a contextually salient situation are also discussed, and the analysis is shown to extend to part-whole bridging as well. Section 4.2 presents a sketch of how the proposal can be couched in a more general framework for understanding discourse structure. An analysis of covarying interpretations of weak-article definites is presented in section 4.3. I also spell out the details of an analysis of donkey sentences whose restrictor is interpreted relative to a contextually salient situation and therefore receives a transparent interpretation (section 4.3.2).

## 4.1   Topic Situations, Questions, and Weak-Article Definites

Let us begin our analysis of weak article definites by considering some simple examples that seem like good candidates for being cases where a weak-article definite gets interpreted relative to the topic situation.

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(169)  a. **Context**: John and I are having a conversation about how his day of
        working in the yard was. (I'm familiar with his yard and know that there
        is exactly one cherry tree.)

       b. *Ich habe ein Vogelhäuschen am        Kirschbaum angehängt.*
          I    have a    bird-house    on-the_{weak} cherry tree   hung
          'I hung a birdhouse on the cherry tree.'

(170)  a. **Context:** We are talking about what happened at the end of a certain
        game.

       b. *Hans machte ein Foto  vom       Gewinner.*
          Hans made    a   photo of-the_{weak} winner
          'Hans took a picture of the winner.'

It seems perfectly plausible that the weak-article definites in both of these ex-
amples pick out the unique cherry tree and the unique winner in the situations that
the respective sentences are about. But what exactly are these situations? If we
are aiming for a detailed semantic account that crucially involves the evaluation of
noun phrases relative to different types of situations, including topic situations, we
have to develop a concrete proposal for what it means for a sentence to be about
some specific situation in order to at least make clear and explicit predictions which
can then be tested against empirical facts. For definites, the matter is particularly
pressing, as the situation with respect to which a definite is interpreted provides the
domain restriction for the uniqueness requirement introduced by the definite article.

### 4.1.1   Deriving Topic Situations From Questions

For the most part, the situation semantic literature that makes use of the term
remains at a fairly intuitive level with respect to what topic situations are. One of the
empirical reflexes of topic situations that has been noted is related to the parallels
with the notion of topic time mentioned in chapter 3. Kratzer (2007) (following
the discussion of topic time in Klein 1994) points out, for example, that tense often

reveals at least some information about the topic situation. Klein (1994) considers the following example in a context where a witness is testifying before a judge about what she noticed as she entered a room.

(171)   a.  There was a book on the table. It was in Russian.

   b.  # There was a book on the table. It is in Russian.

<div align="right">(Klein 1994, p. 4)</div>

The fact that the second sentence requires the past tense is somewhat surprising, since the book in question would still be in Russian at the time of testimony. Kratzer's explanation in terms of topic situations (adapted from Klein, who talks about topic times) is that the past tense is used because the topic situation is in the past, and tense simply expresses a relation between the utterance situation and the topic situation. Similarly, aspect can be seen as expressing a relation between the topic situation and the described situation (Klein 1994, Kratzer 2004).[1]

While information coming from tense and aspect may give us some useful clues about the topic situation of a given utterance, these observations still do not provide us with a concrete proposal for how topic situations of utterances are determined. One specific possibility to consider, suggested by Kratzer (2007, section 8), is that topic situations are derived from questions. In the following, I will develop this idea in some detail and then consider the examples containing weak-article definites from the beginning of the section in light of it.

The idea that topics are related to questions is by no means new. Roberts (1996) writes, for example:

> Lewis (1969) treats questions as a type of imperative; this strikes me as correct in that a question, if accepted, dictates that the interlocutors

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[1]Note that, in light of the apparent effects of tense and aspect on domain restrictions mentioned in chapter 3, these connections lend additional promise to a situation semantic approach to domain restriction.

choose among the alternatives which it proffers. [. . .] The accepted question becomes the immediate topic of discussion.

<div align="right">(Roberts 1996)</div>

Similarly, von Fintel (1995) suggests that 'discourse topics can be the denotation of explicit or implicit questions', and discusses the role of the relevant questions for domain restriction effects (he also points to various previous proposals based on similar ideas). A broader picture of the role of questions within a more general view of discourse structure based on the notion of Q(uestions) U(nder) D(iscussion) (Roberts 1996, Büring 2003) will be discussed in section 4.2. For the moment, let us start by spelling out Kratzer's proposal and considering its predictions for analyzing weak-article definites. Using a situation semantic version of the semantics for questions developed by Groenendijk and Stokhof (1984), Kratzer (2007, section 8) proposes that a question can be directly utilized in determining the (possibly multiple!) topic situation(s) of an assertion that provides a (possibly partial) answer to the question.[2] The extension of the question in (172), for example, would be the denotation in (173), i.e. it would denote the set of situations in which the individuals that caught anything are the same as in the actual world.[3]

(172)   Josephine:  Who caught anything?

       Beatrice:    Jason and Willie did.

(173)   $\lambda s.[\lambda x.\ \exists y\ \mathrm{caught}(x)(y)(s) = \lambda x.\ \exists y.\ \mathrm{caught}(x)(y)(w_o)]$

<div align="right">(Kratzer 2007)</div>

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[2]While there are various notions of what constitutes an answer, the basic idea is that an answer to a question should, roughly speaking, remove at least some of the possibilities the question denotation introduces.

[3]While Groenendijk and Stokhof's (1984) semantics of questions lends itself to this analysis, other approaches to question semantics likely will allow us to derive this proposition as well, if perhaps more indirectly. On a Hamblin-semantics of questions, for example, which takes the meaning of questions to be a set of propositions (that are possible answers to the question), we could simply take the conjunction of all propositions in that set that are true in the actual world to derive (173).

Now, in order to determine the Austinian topic situation(s), Kratzer proposes that we make use of the notion of exemplification, introduced in chapter 3.

(160)   a.  A situation $s$ exemplifies a proposition $p$ iff whenever there is a part of $s$ in which $p$ is not true, then $s$ is a minimal situation in which $p$ is true.

      b.  A situation is a minimal situation in which a proposition $p$ is true iff it has no proper parts in which $p$ is true.

The topic situations the question in (172) provides for the answer then are actual situations that exemplify the proposition in (173). Using the notational convention in (163) from chapter 3 for expressing the relation of exemplification, this is illustrated for in (174) under the assumption that Jason and Willie are the only ones that caught anything in $w_0$.

(163)   $EX(p)(s)$

'$s$ exemplifies the proposition $p$'

(174)   $EX(\lambda s'.[\lambda x. \exists y \text{ caught}(x)(y)(s') = \lambda x. \exists y. \text{ caught}(x)(y)(w_o)])(s)$

$\approx$ '$s$ exemplifies the set of situations in which the individuals that caught something

    are the same as in the actual world'

$\approx$ '$s$ is a minimal situation in which Jason and Willie caught something'

The answer in (172) thus is understood as a claim about minimal actual situations in which the individuals that caught something are the same as those that caught something in the actual world. Kratzer (2007) argues that this perspective provides an interesting way of capturing the difference between exhaustive and non-exhaustive answers: the proposition denoted by an exhaustive answer is exemplified by the topic situations, while the proposition denoted by a non-exhaustive answer is merely true in the topic situations. For example, in (172), the topic situations are minimal situations

in which Jason and Willie caught something. If the topic situation exemplifies the proposition expressed by *Jason and Willie caught something*, this means that Jason and Willie are the only ones that caught anything. If the proposition were merely true in the topic situation, then that would mean that there are other successful catchers (imagine that Jason, Willie and Sam were the ones that actually caught something; then the topic situations would not be minimal situations in which Jason and Willie caught something).

At this point, readers may have noticed a discrepancy between what I first said about topic situations and the picture we are now considering. We started out with the assumption that each sentence is understood as a claim about some specific topic situation. In Kratzer's proposal, we are talking about possibly multiple topic situations, namely all actual situations that exemplify the question extension. The possible plurality comes with the notion of exemplification. Take again the question extension we used for (172).

(173)  $\lambda s.[\lambda x.\ \exists y\ \text{caught}(x)(y)(s) = \lambda x.\ \exists y.\ \text{caught}(x)(y)(w_o)]$

Assume, again, that Jason and Willie are the only ones that caught something in the actual world. Hence this proposition will be the set of situations in which Jason and Willie caught something. What will the actual situations that exemplify this proposition be? That depends on what actually happened, of course. Let's assume that Jason caught a mouse and Willie caught a mouse and a bird. Then there are two situations exemplifying the proposition in (173):

(175)  $s_1$: Jason caught a mouse and Willie caught a mouse

$s_2$: Jason caught a mouse and Willie caught a bird

This construal of topic situations thus forces us to make a choice: either we give up the idea that sentences are understood with respect to some specific topic situation, or we have to find a way of ending up with just one situation from the exemplifying

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situations. One way of doing the latter is to simply form the sum of all the actual situations that exemplify the question extension. For (172), the topic situation then would be as follows:

(176)   $s_3$:  Jason caught a mouse and Willie caught a mouse and a bird

This seems intuitively adequate insofar as in talking about the question of who caught anything, we are talking about all of the catching events that took place. But note that $s_3$ does not exemplify the question extension in (173), because it is not a minimal situation in which Jason and Willie caught something (it has proper parts in which Jason and Willie caught something, namely $s_1$ and $s_2$).[4]

One welcome result of this notion of a topic situation is that it allows us to understand over-informative answers, such as the following, in a straightforward way, while it is not clear how that could be achieved within an account based on multiple topic situations.

(177)   Josephine:  Who caught anything?

        Beatrice:    Jason caught a mouse and Willie caught a mouse and a bird.

Beatrice certainly gives an answer to the question, though one that is over-informative.  Consider the options we would have if we assumed that there were multiple topic situations. One reasonable proposal on such a view would be that in order for a non-exhaustive answer to be true, it has to be true in all of the topic situations. But if we construe the latter as $s_1$ and $s_2$ in (175), then Beatrice's answer should be false, because Willie didn't catch a bird in $s_1$, and he didn't catch a mouse in $s_2$. If we take the topic situation to be the sum of all actual situations that

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[4]As Angelika Kratzer and Chris Potts point out to me, a potentially problematic aspect of this proposal is that the questions *Who caught what?* and *Who caught anything?* determine the same topic situation. I leave further exploration of this issue for future work.

exemplify the QUD extension, on the other hand, her answer comes out as true, as it should.[5]

An alternative possibility, which would seem to yield equivalent results, would address the problem by reconsidering the proposition expressed by the question. We saw in chapter 3, section 3.3, that many noun phrases (such as *between 20 and 2000 guests*) involve maximalization. If *anything* in the question also involved maximalization, then $s_3$ would be a situation exemplifying the question in (172) - in fact, the only one - and there would be no need to form the sum of the exemplifying situations, as on the previous option. Note that this maximalization option would allow us to keep the simple notions of what makes an answer exhaustive or non-exhaustive that Kratzer proposes: exhaustive answers are exemplified by the topic situation, non-exhaustive answers are (merely) true in the topic situation. If we construe topic situations as the sum of all actual exemplifying situations, on the other hand, Kratzer's (2007) characterization of exhaustive and non-exhaustive answers will have to be modified: For an answer to be exhaustive, all of the parts of the topic situation that exemplify the question extension would have to exemplify the answer. A non-exhaustive answer, on the other hand, would have to be true in the topic situation but not be exemplified by all the parts of the topic situation that exemplify the question extension.

While more more work may be needed to decide between these options (and perhaps explore further possibilities), it seems plausible to maintain the view that sentences are evaluated with respect to one specific topic situation. It is related to the question denotation by exemplification and some notion of maximality (either in the form of the sum operation or maximalization in the question denotation). Furthermore, either one of the implementations considered is compatible with an

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[5]I wouldn't consider this a knockdown argument, because it may be just as plausible to see over-informative questions as answering a superquestion ( see below), which then would provide more suitable exemplifying situations as topic situations.

attractive and simple characterization of exhaustive answers along the lines of Kratzer (2007). For the purposes of the discussions to follow, the issue of maximality will not play a central role. I will assume that there is a single topic situation for each sentence, which I will represent using the following notational schema:[6]

(178)  $s_{topic} = \iota s.EX(\text{question extension})(s) \ \& \ s \leq w_0$

### 4.1.2 Definites and Topic Situations

How does the proposal of determining topic situations from a question fare in connection with definites? Let's consider the examples from the beginning of the chapter. Rather than giving an informal description of the context in which the sentence is uttered, we should consider them as an answer to a question, since we want to derive the topic situation from the meaning of a question. Take the following variation of (170), where a specific question is asked in a conversation about a certain game:

(170′)  a.  What did the players do at the end of the game?

  b.  *Hans machte ein Foto  vom      Gewinner.*
      Hans made    a   photo of-the$_{weak}$  winner
      'Hans took a picture of the winner.'

Let us start the analysis by looking at what we predict the topic situation derived from the question to be.

(179)  $s_{topic} =$

  $\iota s.EX(\{s|$ the players did the same things at the end of the game in $s$

      as in $s_{topic_Q}\})(s) \ \& \ s \leq w_0$

---

[6]Note that this notation does not make the maximality aspect mentioned above explicit, but it is intended to be read with these remarks in mind.

The topic situation based on the question is the unique actual situation (that is the sum of all situations) exemplifying the question extension.[7] While the question extension according to the Groenendijk and Stokhof analysis of questions in a possible-worlds semantics makes use of the proposition that is made up of the worlds in which the (complete) answer to the question is the same as in the actual *world*, I take a situation semantic view on this part as well, and will assume that the question extension is made up of the set of situations in which the answer to the question is the same as in the actual *situation* that the question is about, i.e., the topic situation of the question. If we see assertions as making claims about a specific part of the world, it is only reasonable to assume that questions also can be used to ask for information about a specific part of the world. I will elaborate on this point in section 4.2; for the moment, just note that I write $s_{topic_Q}$ for the topic situation of the question.

Assuming that the weak article introduces a uniqueness requirement (whose status will be discussed shortly), we can then analyze the meaning of the sentence in (178b) as follows:[8]

(180)   a.  $[s_{topic} \; [topic \; [\Sigma_1 [Hans \; [a \; photo \; [of \; [[the_{weak} \; s_1] winner]]] \; taken \; has]]]]$

        b.  $\lambda s.s \approx s_{topic} \; \& \; \exists y[\text{photo-of}(\underline{\iota x.\text{winner}(x)(s))}(y)(s) \; \& \; \text{took}(\text{Hans})(y)(s)]$

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[7]I will use somewhat informal characterizations of the question extensions. A more formal characterization could be formulated in an event semantics, where the 'things the players did' could be described as the events that have the players as agents:

(i)   $s_{topic} =$
      $\iota s.EX(\lambda s'.[\lambda e.[AG(e) = \text{the-players} \; \& \; Time(e) = \text{the-end-of-the-game} \; \& \; e \leq s'] =$
          $\lambda e.[AG(e) = \text{the-players} \; \& \; Time(e) = \text{the-end-of-the-game} \; \& \; e \leq s_{topic_Q}]])(s)$
      $\& \; s \leq w_0$

[8]The German LF's will generally represent the German base structure, i.e., the structure before V2-movement and fronting of a constituent takes place.

The topic situation (179) will be part of the game (assuming the end of the game is still part of it), and the weak-article definite $the_{weak}$ *winner* can be interpreted relative to the topic situation, at least as long as it is clear that we are talking about a game that has a unique winner, which is determined, at the latest, at the end of the game, since this ensures that there is a unique player in the topic situation that won, i.e. that the uniqueness requirement of the weak-article definite is met.

It is worth noting that the current proposal for deriving topic situations also captures domain restriction effects with quantificational determiners. (181b) would be another plausible answer to the question in (170) where the situation argument of the quantifier is identified with the topic situation.

(181)   a.  What did the players do at the end of the game?

       b.  Everyone got a drink.

Since the players are known to be part of the topic situation based on the way the question is phrased, the universal *everyone* picks out all of the players in the topic situation when it is interpreted relative to it, which is indeed the most prominent interpretation of this answer.

Another example that nicely illustrates the effects of the topic situation on domain restriction is the following variation of an example from Neale (2004)[9]

(182)   a.  Is there any ice in the house?

       b.  Yes, there's an ice-tray in the freezer.

The topic situation, as determined by the question, is as follows:

(183)   $s_{topic} = \iota s.EX(\{s'|$ the truth-value of *there is ice in the house* is the same

$$\text{in } s' \text{ as in } s_{topic_Q}\})(s) \text{ \& } s \leq w_0$$

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[9]Neale's original example, set in a context where someone asks for a beer, is *There's a bottle in the fridge.* Kratzer (Ms., 2008) argues convincingly that the implicit restriction of *bottle* to mean *bottle of beer* is due to syntactic NP-ellipsis.

The answer in (182) consists of two parts. The affirmative response *yes* informs the hearer that the proposition that there is ice in the house is true in the topic situation. The most plausible interpretation of the second part, *there's an ice-tray in the freezer*, is that it is an elaboration intended to help the questioner with his search for ice by informing him about the location of (some of) the ice in the house. In other words, *an ice-tray* is understood as *an ice-tray filled with ice*. But the literal meaning expressed is simply that there is an ice-tray (which may or may not be filled with ice). We can capture the more restricted interpretation if we understand the second part to be a claim about the topic situation, which therefore results in (182b) being a claim about the situation exemplifying the proposition that there is ice in the house.[10]

Let us now turn to the other example involving a weak-article definite considered at the beginning of the chapter. Below is a slight variation with a question added in.

(169′)   **Context**: John and I are having a conversation about how his day was. I'm familiar with his yard and know that there is exactly one cherry tree.

    a.   What did you do in the yard?

$$s_{topic} = \iota s.EX(\{s| \text{ you did the same things in the yard in } s \text{ as in } s_{topic_Q}\})(s)$$
$$\& \; s \le w_0$$

    b.   *Ich habe ein Vogelhäuschen am     Kirschbaum angehängt.*
        I    have a    bird-house    on-the$_{weak}$ cherry tree   hung
        'I hung a birdhouse on the cherry tree.'

    c.   $[s_{topic}[topic\ [\Sigma_1[I\ [a\ birdhouse\ [[on\ [[the\ s_1]\ cherry\ tree]][hung\ have\ ]]]]]]]$

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[10]A full analysis of this example has to address at least one further complication, namely that, strictly speaking, the ice-tray is not part of the situation exemplifying the question extension, which only contains ice. Perhaps we need to say something general about containers of substances. The problem seems similar to some of the issues concerning larger situation uses, which are analyzed in chapter 5

d.  $\llbracket(183c)\rrbracket^{c,g} = \lambda s.[s \approx s_{topic_{(169b)}} \ \& \ \exists y.\text{birdhouse}(y)(s) \ \&$

$$\text{hung-on(john)}(y)(\iota x.\text{cherry-tree}(x)(s))(s)]$$

Assuming the structure in (183c), we are ensuring that the resource situation pronoun on the weak article is identified with the topic situation by letting the $\Sigma$ binder adjoined below *topic* bind it. The weak-article definite now is evaluated relative to the counterparts of the topic situation, construed as the actual situation exemplifying the question extension (183a). As before, the crucial question with respect to the definite is whether its uniqueness requirement is met in the situation it is interpreted in. Intuitively, this would seem to be the case, since we are talking about John's yard, and it is clear in the given context that there is exactly one cherry tree in his yard.

It may therefore be somewhat surprising that, upon closer inspection of the predictions made by the current proposal for deriving topic situations, the uniqueness requirement gives rise to some trouble in this example (assuming an LF where the situation pronoun on the weak-article definite is identified with the topic situation). The proposition expressed by (169b), on the present analysis, consists of all those situations that are counterparts of the topic situation, understood as the actual situation exemplifying the question extension, and in which John hung a birdhouse on the unique cherry tree in the respective situation. But what is the status of the uniqueness requirement introduced by the definite article?

This question, of course, constitutes a classical choice point for uniqueness analyses (Heim 1991): on a Fregean view, it is a presupposition, whereas on a Russellian view, it is part of what is asserted. Versions of either type of analysis can be formulated in our situation semantics. In either case, the determiner takes a situation argument which restricts the domain for the uniqueness requirement. On a Fregean view, the definite description as a whole denotes the unique individual that has the relevant property in the relevant situation, if there is one, as illustrated in (184a). While this is ultimately a referential view on the meaning of definite description, it is so only

relative to the situation introduced by the situation pronoun, and since situation pronouns can be bound, a given definite description need not be referential in the sense that it only can contribute an individual to the meaning of the sentence. Note that a Fregean view also does not preclude a lexical entry for the weak article that has the type of a quantificational determiner, as we can type-shift the meaning in (184a) to derive the appropriate quantifier meaning, as in (184b) (Partee 1986). A Russellian version of the weak article, according to which the uniqueness requirement ends up being part of what is asserted, is provided in (185).

(184)   Fregean Definite Article[11]

   a.  $[\![ the_{weak} ]\!] = \lambda s.\lambda P_{\langle e, st \rangle} : \exists! x\ P(x)(s).\ \iota x.P(x)(s)$

   b.  $\text{lift}([\![ the_{weak} ]\!]) = \lambda s.\lambda P.\lambda Q.\lambda s' : \exists! x\ P(x)(s).\ Q(\iota x.P(x)(s))(s')$[12]

(185)   Russellian Definite Article

   $\lambda s'.\lambda P.\lambda Q.\lambda s.\exists x.[P(x)(s')\ \&\ \forall y[P(y)(s') \rightarrow y = x]\ \&\ Q(x)(s)]$

Now let us consider what predictions these options make for the example we are discussing. As we will see below, our situation semantic framework provides a novel argument against a Russellian account.[13] For the discussion below, we need to have some broad idea of what the nature of a (part of) discourse consisting of a question and an answer is. On our proposal for deriving topic situations from questions, asking a question can be seen as seeking information about the topic situation. In asking

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[11]I use the convention of writing the presupposed part of a lexical entry after a colon; the asserted part begins after the period. In the following, I will often omit this part, though I will assume throughout that $the_{weak}$ NP introduces a uniqueness presupposition.

[12]Partee's (1986) 'lift' shifts expressions of type $e$ to type $\langle \langle e, t \rangle, t \rangle$. To shift the determiner directly in our system, 'lift' would have to be defined as follows: $\lambda Det_{\langle s, \langle \langle e, st \rangle, e \rangle \rangle}.\lambda s.\lambda P.\lambda Q.\lambda s'.Q(Det(s)(P))(s')$.

[13]There are a number of independent points speaking in favor of a presuppositional account that have been discussed at length in the literature, though the debate between the two perspectives continues. I take the arguments in Heim (1991) for a presuppositional view to be rather convincing (see also the discussion of these arguments in Elbourne (2005)).

what John did in the yard, for example, I am seeking information about what the situation exemplifying the things he did in the yard is like. Given that I am asking the question, it is safe to assume that the information I have about this situation is incomplete at best. Accordingly, I do not necessarily know whether or not the cherry tree (which I know to exist uniquely in John's yard) is part of the topic situation.[14]

On a Russellian view, this last point does not matter. For you are informing me, by uttering (169b), that the situation exemplifying the things you did contains a unique cherry tree. As far as (169b) is concerned, this analysis would seem to result in a plausible interpretation. But to assess whether such a view can be maintained more generally, we also need to consider cases where a definite article cannot be used appropriately. Let us look at an alternative reply of John's that would not have been appropriate.

(186)   # *Ich habe ein Vogelhäuschen am       Zaunpfahl angehängt.*
          I    have a    bird-house    on-the$_{weak}$ fence post  hung
          'I hung a birdhouse on the fence post.'

Unless there is a very unusual fence in John's yard, this reply would be infelicitous, intuitively because there are multiple fence posts in my yard. But if we assume a Russellian account of the weak article, it is not clear at all why (186) should not be a perfectly fine answer. Imagine that the things John did in the yard were the following: he raked the leafs, mowed the lawn, and put a birdhouse on exactly one fence post. If this is all he did in the yard (today), then the situation exemplifying the extension of the question *What did you do in the yard?* is a subsituation of John's yard that contains exactly one fence post. Evaluating the definite *the$_{weak}$ fence post* with respect to the topic situation hence should yield a perfectly fine interpretation of (186), since part of what John is telling me is that the things he did in the yard

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[14]This is only a first sketch of the approach to discourse I spell out in more detail in section 4.2.

today involved exactly one fence post. This is perfectly compatible with there being multiple other fence posts in the yard that his actions had nothing to do with. But (186) clearly is deviant as an answer to the question *What did you do in the yard?*

The lack of appropriateness of (186) seems to be related to the fact that the addressee does not have any idea about how many fence posts might be in the topic situation. Perhaps it's just not enough to tell us that the topic situation consists of some subsituation of the yard in which there is a unique fence post on which John put a birdhouse, because that doesn't narrow things down very much? (Presumably there are many fence posts in the yard.) But this can't be the crucial point, for it would be perfectly fine for him to say (187) in the same circumstances:

(187)   *Ich habe ein Vogelhäuschen an einem Zaunpfahl angehängt.*
        I    have a    bird-house      on a      fence post  hung
        'I hung a birdhouse on a fence post.'

While (187) does not express the same proposition as (186), the two stand in an entailment relation if we assume a Russellian denotation for the definite article. More specifically, (186) entails (187): all situations in which there is a unique fencepost on which John put a birdhouse are situations in which there is a fencepost on which John put a birdhouse. But then it does not make sense to try to explain the contrast in felicity between the two sentences by invoking what ultimately is a measure of informativity, e.g., by saying that (186) is infelicitous because it doesn't narrow down the candidates the addressee could consider to be the topic situation sufficiently. For (187) narrows down the candidates even less, yet it is felicitous.

A Russellian denotation for the weak article thus does not seem to yield a promising analysis in connection with our proposal for deriving topic situations from questions. Before deciding whether this is due to our proposal or the Russellian account, we need to consider how the alternative Fregean denotation fares with our account.

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Let us begin by revisiting the contrast between the definite and indefinite versions in (186) and (187) from this perspective.

(186)   # *Ich habe ein Vogelhäuschen am Zaunpfahl angehängt.*
      I   have a   bird-house     on on-the$_{weak}$ fence post   hung
      'I hung a birdhouse on the fence post.'

(187)   *Ich habe ein Vogelhäuschen an einem Zaunpfahl angehängt.*
      I   have a   bird-house     on a      fence post  hung
      'I hung a birdhouse on a fence post.'

If we assume the uniqueness requirement to be a presupposition, an additional difference between the two sentences comes into play: (186) presupposes that the topic situation contains a unique fence post, whereas (187) does not. In the tradition of presupposition theory following Karttunen (1973) and Stalnaker (1974), what this means is, roughly, that the sentence can only be interpreted in a context where it is common ground that the topic situation contains a unique fence post. But since I just asked John what he did and, therefore - if my question is sincere - do not know the full answer to that question, I do not know whether or not there is a unique fence post in the topic situation. But then it is not common ground that there is a unique fence post in the topic situation, and John therefore cannot felicitously use an expression that presupposes exactly that (see section 4.2 for a more detailed discussion of presuppositions).

Yet another type of case that is problematic for a Russellian approach, but is naturally captured from a presuppositional perspective, is illustrated by the following example, which also represents an inappropriate answer to the question *What did you do in the yard?*

(188)   # *Ich habe ein Vogelhäuschen am          Kaktus angehängt.*
      I   have a   bird-house     on-the$_{weak}$ cactus  hung
      'I hung a birdhouse on the cactus.'

Assuming that I do not know that John has a cactus in his yard, this answer is quite odd, intuitively because it would be rather surprising for there to be one, and furthermore, because John cannot take for granted that I am aware of this surprising fact. This type of effect is well-known from the literature on accommodation (von Fintel 2008); on a Russellian perspective, this oddness is unexpected, as John would simply be informing me that there is a cactus in his yard as part of his utterance of (188).

Interestingly, a phenomenon that is completely parallel to the one we saw for $the_{weak}$ *fence post* in (186) arises with quantifiers like *every*. Consider the following exchange:

(189)    a.  Context: You just were in the kitchen, and I know that there were cookies and a cake for a party we are having tonight. Your mouth is obviously full, and, concerned about you gobbling up all our goodies before the party, I ask you:

        b.  What did you just eat?

        c.  I ate every / all the cookies.

Assuming the resource situation pronoun on the quantifier is identified with the topic situation (via the $\Sigma$-binder), which is construed as the actual situation exemplifying the question extension, we get a very odd interpretation of what you said, one that is not in fact available. The interpretation we'd predict for the sentence you uttered would be that you ate all the cookies in the actual situation exemplifying what you just ate, i.e. you ate all the cookies you ate. On that interpretation, we would learn nothing about what proportion of the cookies that I knew to be in the kitchen you consumed - you could have eaten just a few or all of them. In other words, there'd at least be hope that some cookies are left. But the actual interpretation of your answer leaves no hope - you finished all of them, and there are no cookies left for the party.

Can we apply the same reasoning here as for $the_{weak}$ *fence post* in (186) above? Just as in that case, informativity can't be the crucial point, because it would be perfectly fine to say *I ate (some (of the)) cookies* in the same context. In fact, in this case, the two sentences would end up making the same claim. Since the topic situation exemplifies what I ate, saying that there were cookies amongst the things that I ate is the same as saying that I ate all of the cookies in the topic situation, because any non-eaten cookies wouldn't be part of the topic situation in the first place. So in this case, too, we need to appeal to the presuppositional nature of the domain of the universal quantifier: a sentence containing *[[every s] cookie]* presupposes that there are cookies in *s*. But if *s* is identified with the topic situation via $\Sigma$ in (189), then this cannot be taken for granted in the given context, as the questioner clearly does NOT know what things are in the topic situation.

(186) (*the fence post*) and (189) (*every cookie*) differ in that the former cannot be used felicitously at all in the given scenario (at least given standard assumptions about fences etc.), whereas (189) can be used, just not with an interpretation where the situation pronoun on *every* is identified with the topic situation. What situation is it interpreted in then? Arguably, it is a contextually supplied situation, e.g., the one consisting of the kitchen. This brings us back to the original example in (169b) (*the cherry tree*), which I argue to have a felicitous interpretation when the situation pronoun on the weak article introduces a contextually salient situation (see section 4.1.3).

In conclusion the proposal for deriving topic situations from questions introduced in section 4.1 fares rather well in light of the weak-article data, at least as long as we assume a Fregean, presuppositional analysis of the weak article. Within the situation semantic framework developed here, a Russellian analysis of weak-article definites runs into serious problems. Interestingly, we found similar issues for *every*, which provided an argument in favor of a presuppositional view of quantificational deter-

miners. While one of the examples with a weak-article definite we started out with at the beginning of the chapter turned out not to be a case where the definite is interpreted in the topic situation, this did not speak against the proposal for deriving topic situations from questions. Quite the contrary, it is a strength of the present analysis that it can capture the infelicity of examples such as (186) (*the$_{weak}$ fencepost*) where the uniqueness presupposition of a weak-article definite is not met in the topic situation. In the example we started out with, (169b), the weak-article definite also cannot be felicitously interpreted in the topic situation, but there is an alternative logical form that does render a felicitous interpretation, namely one where the situation argument on the definite picks out a contextually salient situation. These cases will be discussed in more detail in the following section.

### 4.1.3  Definites and Contextually Supplied Situations

We saw in the preceding section that *the$_{weak}$ fence post* in (186) cannot be interpreted relative to the topic situation derived from the question, because it is not common ground that there is a unique fence post in that situation.

(186)  # *Ich habe ein Vogelhäuschen am Zaunpfahl  angehängt.*
      I    have a   bird-house     on on-the$_{weak}$ fence post   hung
      'I hung a birdhouse on the fence post.'

The same reasoning applies to the original example that we started out with, repeated below for convenience.

(169)  **Context**: John and I are having a conversation about how his day was. I'm
      familiar with his yard and know that there is exactly one cherry tree.

  a.  What did you do in the yard?

     $s_{topic} = \iota s.EX(\{s|$ you did the same things in the yard in $s$ as in $s_{topic_Q}\})(s)$

  b.  *Ich habe ein Vogelhäuschen am*         *Kirschbaum angehängt.*
     I    have a   bird-house     on-the$_{weak}$ cherry tree   hung
     'I hung a birdhouse on the cherry tree.'

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The addressee doesn't know whether or not the cherry tree in the yard is part of the situation exemplifying all you did in the yard, so John as the speaker can't use an expression that presupposes just that. There is an alternative, though, and that is for the resource situation pronoun to be interpreted as picking out a contextually salient situation (what Cooper (1995) calls a resource situation), e.g., the situation containing the yard in (169b), since it is common ground that the yard contains exactly one cherry tree.

In the situation semantics introduced in chapter 3, interpreting the situation pronoun as picking out a contextually salient situation means that it receives a value via the assignment function. The corresponding LF and interpretation are then as follows.

(169)   a.  $[s_{topic}[ \; topic \; [ \; I \; [ \; a \; birdhouse \; [[ \; on \; [[ \; the \; s_r] \; cherry \; tree \; ]][ \; hung \; have \; ]]]]]]$

    b.  $[\![(183c)]\!]^{c,g} = \lambda s.[s \approx s_{topic} \; \& \; \exists y.\text{birdhouse}(y)(s) \; \&$
$$\text{hung-on(john)}(y)(\underline{\iota x.\text{cherry-tree}(x)(g(r))})(s)]$$

What determines the value that the assignment function assigns to the index on the free situation pronoun on the definite? While we have a concrete semantic proposal for construing topic situations, I do not believe it is possible to give a precise semantic formulation of what situations can serve as contextually salient situations that serve as values for the assignment function. Just as with non-bound personal pronouns, this is a matter of pragmatics. However, it is clear that this process has to be heavily restricted, because otherwise, definites whose description has any instantiations in the world at all can easily be interpreted relative to some situation containing exactly one such individual. The quantificational force of universals would also be undermined, as eating all the cookies in some situation doesn't tell us much at all - there could always be more cookies in a supersituation.

In construing examples, one way of making sure that a situation really is sufficiently salient in a given discourse is to provide a rich enough context, as above,

where the choice of the contextual situation is rather clear: In (169b), it is based on the referent of a locational expression in the question (*the yard*).[15] Similarly in (189) (*I ate every cookie*), the situation pronoun on the quantificational determiner is most plausibly understood as being evaluated relative to the situation consisting of the kitchen, which is immediately present in the utterance context.

Another example illustrating the need for interpreting situations pronouns as introducing contextually salient situations comes from Cooper (1995). We already encountered (136) in chapter 3. A German equivalent is provided in (190).

(136)   Context: Suppose that we have a university department whose members consist of linguists and philosophers. On one particular year two people are coming up for tenure, a linguist and a philosopher, but the department is only allowed to recommend one of them. To the shame of this department...

*Every linguist voted for the linguist and every philosopher for the philosopher.*

(Cooper 1995, ex. (19))

(190)   Context: The departments of linguistics and philosophy are hosting a joint talk series. Each speaker was introduced by one of the two colloquium committee co-chairs, one of them a linguist, one a philosopher.

*Jeder Linguist wurde vom      Linguisten vorgestellt, und jeder Philosoph*
every linguist   was   by-the$_{weak}$ linguist    introduced  and  ever  philosopher

*vom        Philosophen.*
by-the$_{weak}$  philosopher

'Every linguist was introduced by the linguist and every philosopher by the philosopher.'

In these examples the universal quantifier DPs and the definites have to be interpreted with respect to different situations, since otherwise, as Cooper puts it in his

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[15]Another possibility will be discussed in the next section in connection with a more complex view of discourse structure.

discussion of (136), the sentence would 'describe a situation in which the department had exactly two members, a linguist and a philosopher, who voted for themselves' (or, with respect to the German example, describe a situation where each speaker introduced himself), which clearly doesn't match our intuitive understanding of the sentence. The context provides a suitable and contextually salient situation that contains the co-chairs of the committee, who are known to be a linguist and a philosopher.

Yet another case where a situation pronoun has to be interpreted relative to a contextually salient situation, rather than the topic situation, arises when the topic situation is explicitly said to contain more than one individual of the relevant kind.[16]

(191)  a. Context: Hans, who works at a ministry, and his wife are talking about what has been going on at work. She asks him:

   b. What happened to the proposal you drafted?

   *Der Vorschlag wurde in der Kabinettssitzung gestern    vom*
   the  proposal   was    in the cabinet meeting   yesterday by-the$_{weak}$

   *Minister vorgestellt, aber 7 SPD-Minister haben dagegen gestimmt.*
   minister  introduced  but  7 SPD-ministers have   against  voted
   'The proposal was introduced by the minister in yesterday's cabinet meeting, but 7 SPD-minister voted against it.'

Hans's answer here says that the topic situation (the actual situation exemplifying what happened to the proposal) contains a number of ministers, yet it is perfectly felicitous for him to use the weak-article definite *the$_{weak}$ minister*, which is interpreted to pick out the minister that he works for. It can't be interpreted relative to the topic situation, since its uniqueness presupposition would not be satisfied. Therefore, it has to be interpreted relative to a contextually salient situation - plausibly something like the place where Hans works, since that is the more general topic of conversation.

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[16]This example is, of course, very similar to the examples by McCawley, Lewis, and Soames that we discussed in the section on domain restriction.

Finally, there are cases of globally unique definites. These can always be evaluated relative to the entire world, which arguably is quite generally available as a contextually salient situation.

(192)  a. Context: Hans just came home from work and is talking to his wife about what's new.

      b. What did the mailman bring today?

      c. *Für dich ist ein Brief vom      Papst gekommen.*
         for you is a   letter from-the$_{weak}$ pope come
         'You got a letter from the pope.'

The topic situation derived from the question will surely not include the pope, since the pope himself did not come in the mail. So we can't evaluate *the$_{weak}$ pope* relative to the topic situation. But since it is common ground, given our world knowledge, that there is exactly one pope in the world, we can safely interpret it relative to the world of the topic situation ($w_s$).

### 4.1.4  Part-Whole Bridging

Given the situational uniqueness analysis developed here, cases of part-whole bridging, which we showed in chapter 2 to be expressed with the weak article, are straightforwardly captured as yet another case of picking out the unique individual that has the relevant property denoted by the description in the situation with respect to which the weak-article definite is interpreted (see also the discussion in Wolter 2006a). Recall (58), repeated here from chapter 2.

(58)  a. ***Der Kühlschrank** war so groß, dass der Kürbis   problemlos*
       The fridge          was so big   that the pumpkin without a problem

       ***im**     / **#in dem**  **Gemüsefach** untergebracht werden konnte.*
       in-the$_{weak}$ / in   the$_{strong}$ crisper     stowed     be     could
       'The fridge was so big that the pumpkin could easily be stowed in the crisper.'

In order to assess with respect to what situation the weak-article definite *the crisper* is interpreted, we have to know what context this sentence is uttered in. Specifically, we need to know the QUD. Let's assume it's the following:

(193)   a.  What was the kitchen like?

       b.  $s_{topic} = \lambda s.EX(\lambda s'[\lambda P.P(\text{KITCHEN})(s') = \lambda P.P(\text{KITCHEN})(s_{topic_Q})])(s)$

           $\& \ s \leq w_0$

Given this context, both of the definites (*the fridge* and *the crisper*) are interpreted relative to the actual situation exemplifying the properties that the kitchen has.[17]

As in other cases of situational uniqueness uses of weak-article definites, uniqueness is of course crucial for part-whole bridging uses. The following contrast reiterates the point:

(194)   a.  What was the dining room like?

       b.  *Am      Esstisch   gab  es   viele detaillierte Verzierungen.*
          at-the$_{weak}$  dining table were there many detailed    embellishments
          'The dining table had many detailed embellishments.'

       c.  # *Am      Stuhl gab es   viele detaillierte Verzierungen.*
           at-the$_{weak}$  chair  were there many detailed    embellishments
          'The chair had many detailed embellishments.'

While a typical dining room has exactly one table, it's quite odd to have a dining room with only one chair. Therefore, the second sentence is judged to be odd (unless there is some contextually salient situation that contains a unique chair, parallel to (191b) in the previous section).

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[17]The addressee may have to be willing to accommodate that there is a unique fridge in the kitchen and that the fridge has a unique crisper, but since both of these assumption represent the default case, this is not difficult at all.

While these cases of part-whole bridging involve two individuals serving as part and whole, we find the same phenomenon with parts of events as well. (195) represents an example of this sort.

(195)    a. How did proposing to Mary go?

b. *Sie hat einen Kratzer am        Ring entdeckt, (aber ansonsten lief*
She has a     scratch on-the$_{weak}$ ring discovered (but  otherwise  went

*alles glatt).*
all    smoothly)
'She discovered a scratch on the ring, but otherwise, everything went smoothly.'

<div align="right">Modeled after an example by Evans (2004)</div>

The interpretation of *the$_{weak}$ ring* here of course builds on the general knowledge that acts of proposing (at least typically) involve a ring. I will say a bit more about issues related to such general assumptions and phenomena related to presupposition and accommodation more generally in section 4.2.

Another case, which nicely illustrates the flexibility we have in a situation semantics for providing the right type of situation to guarantee uniqueness, is the following:

(196)    a. What happened when you came to class?

b. *Ich kam  zu  spät, und als    ich mich  hinsetzen wollte, entdeckte ich,*
I    came too late  and when I    REFL sit         wanted discovered I

*dass ein Kaugummi   am        Stuhl klebte.*
that a    chewing gum on-the$_{weak}$ chair stuck
'I was late, and when I tried to sit down, I discovered that a gum was stuck on the chair.'

In this case, the 'when'-clause provides the necessary specification of the situation that makes the use of the definite *the chair* possible. The classroom probably contains a number of chairs, but since we are talking about me sitting down, it is clear we are talking about the unique chair involved in that attempt.

I will come back to part-whole bridging uses and discuss them in some more detail in chapter 5, where I argue that part-whole relationships are also crucial for analyzing larger situation uses. As the last two examples suggest already, one important point will be that this type of bridging does not directly encode any relationship between two individuals (as a *C*-variable account would have it), but rather turns on the same type of situational uniqueness as any other use of a weak-article definite.

### 4.1.5 Summary

This section introduced a proposal, building on Kratzer (2007, section 8), for deriving topic situations from question meanings. After spelling this proposal out in some detail, I discussed some basic weak-article data in light of it. While one of the two examples from the beginning of the chapter, (178b), received a straightforward analysis as being interpreted in the topic situation construed according to this proposal, the other example led to some interesting complications. This required us to consider the status of the uniqueness requirement, and we concluded that only a presuppositional, Fregean meaning for the weak article yielded plausible interpretations in connection with our proposal for determining topic situations. In addition to being identified with the topic situation, the situation pronoun on weak-article definites can also be interpreted relative to a contextually salient situation by receiving a value via the assignment function, as was the case for the other example from the beginning of the chapter, (169b). In line with the approach taken in chapter 3, we saw various parallel data points for examples with quantificational determiners. Finally, I provided a first sketch of how part-whole bridging uses of weak-article definites fall out as a special case of situational uniqueness. In the next section, I provide a more detailed discussion of how this analysis of weak-article definites fits into a more comprehensive picture of discourse structure.

## 4.2 Questions Under Discussion, Discourse Structure, and Presuppositions

The first section of this chapter introduced a proposal for deriving topic situations from questions and argued for a presuppositional interpretation of weak article definites. In this section, I motivate the relationship to questions by considering a more comprehensive perspective on the role of questions in discourse structure. I also provide a sketch of how the situation semantics used here can be linked to a theory of presuppositions within such a view of discourse.

### 4.2.1 Questions and Discourse Structure

> Q:  Wir könnten sehr gut auch jede Behauptung in der Form einer Frage mit nachgesetzter Bejahung schreiben; etwa: "Regnet es? Ja!". Würde das zeigen, dass in jeder Behauptung eine Frage steckt?
>
> 'We might very well also write every statement in the form of a question followed by a "Yes"; for instance: "Is it raining? Yes!" Would this show that every statement contained a question?'
>
> (Wittgenstein 1953, par. 22)
>
> A:  Ja!
>
> (Groenendijk and Stokhof 1984)

The proposal in section 4.1 for deriving topic situations from questions hinges on the crucial assumption that at least in some sense, there is a question for every assertion.[18] Obviously, this is not literally the case, since linguistic interaction is not limited to pairs of explicit questions and answers. Nonetheless, many authors have argued that it is indeed plausible to view the assertion of any sentence as an answer to a (possibly implicit) question. One important approach to discourse and information structure, which has primarily been used to account for intonational phenomena, is based on this idea (Roberts 1996, Roberts 2004, Büring 2003, Beaver and Clark 2008). In the following, I will briefly sketch this perspective on discourse to show that there

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[18]And, furthermore, that questions themselves can be seen in the context of a larger questions.

are strong and independent motivations for assigning questions a central role in a framework for discourse structure that provides the pragmatic context for a semantic theory of sentence meanings.

In the approach to discourse structure developed by Roberts (1996) and Büring (2003), assertions are seen as discourse *moves* (Carlson 1983) that serve to answer, if perhaps partially, a (possibly implicit) question that constituted the immediately preceding move - the Q(uestion) U(nder) D(iscussion). QUD's play a central role in accounting for a number of phenomena related to information structure, in particular with respect to focus and contrastive topics. Generally speaking, a sentence with an intonation indicating a certain focus structure can only be uttered felicitously in the context of a question whose meaning stands in the appropriate relation to the focus meaning of the sentence (roughly speaking, the meaning of the sentence minus the focused part). For example, we couldn't switch the answers in the following question-answer pairs, because the focus accents on A and A' only match the questions in Q and Q', respectively.

(197)  Q: What did you plant in the yard?

       A: I planted the FLOWERS$_F$

(198)  Q': What did you do with the flowers?

       A': I PLANTED$_F$ the flowers.

There are various ways of stating the relevant relationship that has to hold between the focus meaning and the question meaning in order for the intonation pattern to be felicitous in its context. The choice amongst these, which includes, but is not limited to, the choice between semantic theories of questions and focus, constitutes a complex and intricate issue that continues to be under active investigation. Discussing the options in any detail would go far beyond the present work. What is crucial for our purposes is that there are independent reasons to relate the analysis of asserted

sentences to questions, whose denotations provide a suitable way of construing what the sentence is about.

Analyses of information structure that appeal to the QUD need to say something about implicit questions as well. Büring (2003) provides particularly clear evidence that implicit questions have to play a role of their own in this overall approach to discourse. Within his analysis of contrastive topics (CT), he points out that contrastive topic marking (which is done, in English, with a fall-rise accent) is obligatory if the relevant question is implicit:

(199)   What did the pop stars wear?

  (*What did the female pop stars wear?*)

  a.  The FEMALE$_{CT}$ pop stars wore CAFTANS$_F$

  b.  # The female pop stars wore CAFTANS$_F$

(Büring 2003)

If the implicit question is made explicit, on the other hand, the CT-accent on *female* becomes optional. One way of looking at this phenomenon is that implicit questions need to be indicated in a sufficiently clear way (Büring provides a detailed analysis, though not exactly in these terms). The general idea, then, with respect to implicit questions in discourse, is that their presence is reflected in properties of their answers.

Much more needs to be said, of course, to gain a full understanding of the distribution and status of implicit questions (see Beaver and Clark 2008, for some remarks in this direction). But for present purposes, the main point is to see that there are more general reasons to view sentences as answers to questions, be they explicit or implicit. To the extent that the exact nature of the topic situation is crucial to the interpretation of a given sentence in the following discussions, I provide an explicit question to avoid any unnecessary complications.

### 4.2.2  Discourse Structure and Situational Domain Restriction

The QUD-approach to discourse structure takes into account more complex parts of discourse than simple question-answer pairs. On the most general level, it sees discourse as a form of inquiry, i.e., as a quest for information. Central to this (idealized) view is the notion of C(ommon) G(round) (Stalnaker 1978), which consists of the propositions that are mutually held to be true (at least for the purpose of the conversation) by the discourse participants. The conjunction (or intersection, speaking set-theoretically) of the propositions in the CG, which are seen as sets of possible worlds in these theories, forms the Context Set, which thus makes up the strongest proposition mutually believed by the interlocutors. The goal of discourse on this view, on the most general level, is to answer the question of what the world is like (which would correspond to the Context Set becoming a singleton set).

Roberts (1996) proposes that discourse is structured by so-called *strategies* which serve to provide intermediate steps towards the overall goal. Headway towards answering a more general question can be made by answering a more specific question. Büring (2003), following Roberts (1996) (and also van Kuppevelt 1991, van Kuppevelt 1995, van Kuppevelt 1996), suggests that we can model a discourse in the form of a d(iscourse)-tree, which consists of interrogative and assertive moves.

(200)

```
                              discourse
                      _____/    _____
                   question              question
              ___/    |    \___              |
          subq      subq      subq          ...
           |       /    \       |
        answer  subsubq subsubq answer
                   |       |
                answer   answer
```
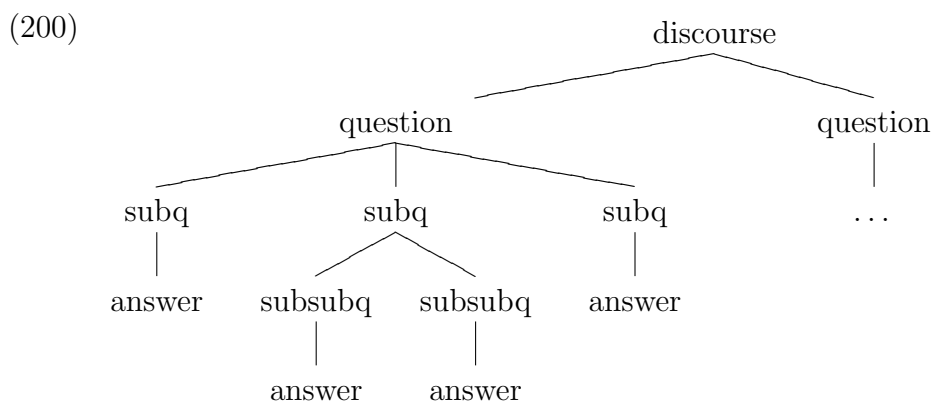
Given this type of structure, each question can be seen as a subquestion to a more general superquestion. The sub-/superquestion relationship can be made precise using

an entailment relation between interrogatives (Roberts 1996). Following Groenendijk and Stokhof (1984, p. 16), Roberts (1996) takes an 'interrogative Q1 [to entail] another Q2 iff every proposition that answers Q1 answers Q2 (This presupposes that we're talking about complete answers, for otherwise the entailments can actually go the other way around.)' Q1 then is a superquestion, and Q2 a subquestion.

There are at least two ways in which taking into consideration such a more complex structure of discourse has an impact on the issue of situational domain restriction. First, as was already indicated in section 4.1.2, it seems natural in our framework to see questions as seeking information about a certain part of the world, i.e. to assume that questions are evaluated with respect to a topic situation of their own as well. Given a structure of discourse as in (200) provides a straightforward extension of our proposal for deriving topic situations to questions. Since each question (except for the most general one) can be seen as a subquestion to a superquestion, we can simply derive its topic situation from the extension of the superquestion. The effect that this has on domain restriction is that the topic situation of an assertion that serves as an answer to a particular question can be indirectly restricted by the superquestions higher up in the structure, as they already successively narrow down the part of the world that we are talking about.

Take the following variation of the example from Kratzer (2007) discussed in section 4.1 as an illustration:

(201)   a.  What did the kids do this weekend?

    b.  They went looking for Easter-eggs.

        i.  Who found anything?

        ii.  John and Bill did.

The effect of a superquestion indirectly restricting the topic situation of an answer to a subquestion can be seen most clearly with temporal (as well as locational)

modifiers such as *this weekend*. The claim expressed by the answer in (201b-ii) (*John and Bill found something*, after ellipsis resolution) is most naturally understood to be about this weekend, not about some other time. But the (immediate) QUD that it answers does not make any explicit mention of this weekend. However, in this discourse it serves as a subquestion to the more general question of what the kids did this weekend. My proposal is that it is therefore asking about the topic situation derived from the superquestion, understood, as before, as the situation exemplifying the extension of the latter. The question meaning and its supersituation thus are characterized as follows.

(202)    a.    $s_{topic_Q} =$

$\iota s.EX\{s'|$ the kids did the same things this weekend in $s'$ as in $s_{topic_{superQ}}\}(s)$

$\& \ s \leq w_0$

(where $s_{topic_{superQ}}$ is the topic situation of the superquestion)

b.    $[\![(201b-i)]\!] = \{s|$ the finders in $s$ are the same as in $s_{topic_Q}\}$

The answer to the subquestion in (201b-ii) thus is about the topic situation of the subquestion, which will be a subsituation of the topic situation of the superquestion. In this way, restrictions introduced by temporal modifiers (and other expressions) are passed on from superquestion to subquestion (and their answers). Naturally, if a DP whose determiner introduces a situation pronoun is interpreted relative to the topic situation, these effects directly affect the situational domain restriction of the DP. Take the following continuation of the above dialog:

(203)    a.    What did John do with the eggs he found?

b.    He immediately ate all of the eggs.

Again, we are only talking about the eggs that he found this weekend, since we are still concerned with the superquestion of what the kids did this weekend.[19] Assuming a more complex discourse structure in combination with the approach of determining topic situations based on question meanings thus provides us with an attractive way of modeling how the topic situation of a given sentence (and its capacity of affecting domain restriction) relates to the topic situations of the larger parts of discourse it occurs in.

The second way in which superquestions can affect situational domain restriction is by providing contextually salient situations which can serve as the values assigned to non-bound situation pronouns on determiners by the assignment function. The following German example with a weak-article definite provides an illustration.

(204)   a. What did the kids do in the yard today?

   b. They went looking for Easter-eggs.

      i. Who found anything?

      ii. *Hans hat alle Eier im       Sandkasten gefunden.*
          Hans  has  all   eggs  in-the$_{weak}$  sand box     found
          'Hans found all eggs in the sand box.'

*The$_{weak}$ sand box* is, of course, understood to be part of the yard. But since it is not necessarily known in which part of the yard the findings took place, and therefore what the location of the situation exemplifying the subquestion is, the weak article definite can't be evaluated with respect to the topic situation derived from the subquestion (the reasoning here is parallel to the case of *the$_{weak}$ cherry tree* in (169b) above). It can, however, be interpreted relative to the situation determined by the superquestion. This can be done by leaving its situation pronoun free and letting the assignment function assign that situation to it as its value.

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[19]Note that we likely will have to appeal to a contextual notion of entailment for determining the sub-/superquestion relation here. I leave the details of spelling this out to future research.

We thus have identified two specific ways in which contextually supplied situations can be made salient. In section 4.1.3, we saw that DPs denoting locations, such as *the yard* can provide a value for free situation pronouns. Within the current perspective, we just saw the additional possibility that the topic situation of a superquestion can also play this role.

I should emphasize that the proposal outlined in this section is merely a sketch that needs to be spelled out in more rigorous technical detail. Nonetheless, I hope that this sketch of how the situation semantics developed here can be tied together with an account of discourse structure suffices to illustrate that such an endeavor is promising. A more thorough evaluation of the prospects of this enterprise will have to be left for future work.

### 4.2.3 Presupposition and Accommodation in Situation Semantics

We saw in section 4.1.2 that an analysis of definites in connection with the proposal for deriving topic situations from question meanings has to be a presuppositional one. In this section, I'd like to briefly sketch how the situational analysis presented here can relate to the standard account of presuppositions within the common ground view of discourse.[20]

We already introduced Stalnaker's notion of common ground as the set of mutually shared beliefs of discourse participant, as well as the notion of the context set derived from it (which has all those worlds as members in which all of the propositions in the common ground are true). The general analysis of presuppositions in such a framework is that a sentence that presupposes $P$ can only be uttered felicitously if the context set entails $P$. For example, *be aware + S* is standardly assumed to presuppose that $S$.

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[20]In recent years, various alternative proposals for a theory of presupposition have been brought forth; unfortunately, I'm not able to discuss these in any detail in the present context.

(205)   John is aware that Mary is on vacation.

Thus, (205) can only be uttered in a context in which it is common ground that Mary is on vacation.

Can the common ground view of presupposition be adapted to fit our situation semantics and the presuppositional analysis of weak-article definites? While a detailed technical implementation may involve some intricacies (as is almost always the case when working with situations), it seems like there should be no general problem in making the two fit together. Since situations are parts of possible worlds, we may even be able to leave the context set as is, i.e., as consisting of a set of possible worlds, rather than situations. The additional dimension added by the situation semantics is that the worlds in the common ground are (or can be) characterized by the parts they have, as well as the properties of these parts. In uttering a sentence about a certain topic situation, for example, we might simply reduce the context set in such a way that we exclude all those worlds in which the counterpart of the topic situation does not have the property attributed to it by the expressed proposition.

To see this in light of a concrete example, let's re-examine our examples from the beginning of the chapter.

(169)   **Context**: John and I are having a conversation about how his day was. I'm familiar with his yard and know that there is exactly one cherry tree.

   a.  What did you do in the yard?

   b.  *Ich habe ein Vogelhäuschen am        Kirschbaum angehängt.*
       I    have a   bird-house   on-the$_{weak}$ cherry tree   hung
       'I hung a birdhouse on the cherry tree.'

(170′)   a.  What did the players do at the end of the game?

   b.  *Hans machte ein Foto   vom       Gewinner.*
       Hans made    a   photo of-the$_{weak}$ winner
       'Hans took a picture of the winner.'

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While it turned out that the weak-article definites in these examples have to be evaluated in different types of situation - the one in (170) in the topic situation, the one in (169b) in a contextually salient situation that contains the yard - the presuppositional requirement introduced by the weak article is the same: it has to be common ground that there is a unique cherry tree / winner in the situation introduced by the situation pronoun on the determiner.

As Roberts (2003) has argued, the uniqueness requirement of the definite article (and presuppositions in general) only has to be met in the worlds that are members of the context set, i.e., worlds that are compatible with the propositions in the common ground. Adapting this notion of 'informational uniqueness' (Roberts 2003) to our situation semantics, that means that the uniqueness presupposition only has to hold in counterparts of the topic situation (or the contextually supplied situation) that are part of a world that is a member of the context set. In this way, we can maintain the standard view that the mutually shared beliefs of the interlocutors are what is crucial with respect to presupposed information.[21]

In (169b), for example, where the weak-article definite is interpreted relative to a contextually salient situation consisting of the yard, the uniqueness presupposition only has to hold in counterparts of this situation that are compatible with the interlocutors' beliefs about the yard; since the context makes it clear that both speaker and hearer believe that there is a unique cherry tree in the yard, this presupposition is therefore unproblematic. The fact that there may be other counterparts of the yard-situation in which there is no cherry tree (or several) is irrelevant. In (170), the uniqueness presupposition follows from the question, at least if it is common ground that the type of game in question always has a unique winner. The form of the ques-

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[21]While I will not provide a detailed comparison between the present account and the one by Roberts (2003), I believe it is fair to say that the two are similar in spirit, if not in their technical implementation, to quite an extent (and the points made by Roberts certainly have influenced the view I develop here).

tion guarantees that the players of the game will be part of the topic situation, and since the winner will be one of them, the uniqueness presupposition of $the_{weak}$ *winner* is again unproblematic.

In cases where the uniqueness presupposition is neither met in the topic situation nor in a contextually salient situation, the result is presupposition failure, as we saw in (186).

(186)   a.  What did you do in the yard?

      b.  *# Ich habe ein Vogelhäuschen am       Zaunpfahl angehängt.*
          I    have a    bird-house    on-the$_{weak}$   fence post   hung
          'I hung a birdhouse on the fence post.'

Note, however, that in this case, too, it's crucial what information is available about the situation introduced by the situation pronoun on the weak-article definite. In the following variation of the context, for example, the sentence in (186) can be uttered felicitously.

(206)   I saw you do some work in the far-left corner of the yard, but have no idea what it is you did there. I do know, however, that there is only one fence post within that area. We have the following exchange:

     a.  What did you do in the far-left corner of the yard?

     b.  *Ich habe ein Vogelhäuschen am       Zaunpfahl angehängt.*
         I    have a    bird-house    on-the$_{weak}$   fence post   hung
         'I hung a birdhouse on the fence post.'

It is worth noting that a certain, limited amount of accommodation (Lewis 1979) will likely have to play a role within the story that I'm outlining. This issue already was implicitly present in the discussion of (170) ($the_{weak}$ *winner*): In order for it to be common ground that there is a unique winner in the topic situation derived from the question in (170), it has to be common ground that the game that was being played is one that ends with exactly one player winning. It does not seem like this

must have been common ground before the answer in (170) was uttered. Apparently, a cooperative hearer can accommodate this bit of information. A similar issue arises in (195) from section 4.1.4.

(195)  a.  How did proposing to Mary go?

   b.  *Sie hat einen Kratzer am        Ring entdeckt, (aber ansonsten lief*
       She has a      scratch  on-the$_{weak}$  ring  discovered (but  otherwise   went
       *alles glatt).*
       all   smoothly)
       'She discovered a scratch on the ring, but otherwise, everything went smoothly.'

                                    Modeled after an example by Evans (2004)

The basic phenomenon we are facing here was already pointed out by Prince (1981) in her discussion of what she calls *inferrables.* A situation involving proposing to someone may typically involve a ring, but it does not necessarily. Therefore, just because I asked the question in (195), it need not be common ground that a ring was involved in the relevant event that is at the core of the topic situation. Nonetheless, it is easy enough for the hearer to adjust the common ground accordingly. Two points are important, however: first, a ring is at least typically part of a proposing event, and secondly, if there is a ring, it typically is a unique one. Compare the variation in (207), which does not go over as smoothly:

(207)  a.  How did proposing to Mary go?

   b.  *Sie fand, dass meine Krawatte nicht zur        Rose passte, (aber*
       She found that  my     tie         not   to-the$_{weak}$  rose  match (but
       *ansonsten lief   alles glatt).*
       otherwise   went all    smoothly)
       'She thought that my tie didn't go with the rose (but otherwise, everything went smoothly).'

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It seems perfectly plausible for a rose to be involved in a proposing event, but it is not as easy as above to adjust ones common ground to accommodate the presupposition that there was a rose in the proposing event, let alone a single one. This type of effect is, of course, well known from the literature on accommodation. In our system, what it means to accommodate a piece of information is to adjust ones beliefs about what the topic situation (or whatever situation the situation pronoun on the determiner introduces) is like, in this case, that the actual proposing event involved a ring or a rose.

Once again, much more needs to be said about accommodation and, especially, its limits (Beaver and Zeevat 2007, von Fintel 2008). While it is important to note that the analysis presented here is compatible with (at least certain types of) accommodation, I would also like to point out that the situation semantic analysis developed here, and especially the account of larger situation uses in chapter 5, allows us to capture a substantial amount of data that other accounts (particularly those based on familiarity) see as involving accommodation without appeal to such a process. Since I find it desirable to limit appeal to accommodation as much as possible, I take this to be a virtue of the proposal developed here.

## 4.3   Covarying Interpretations of Weak-Article Definites

### 4.3.1   Donkey Sentences with Weak-Article Definites

We can now turn to covarying interpretations of definite descriptions. Donkey sentences are of particular interest in this regard, as they cannot be captured via standard syntactic binding.[22] Much of the situation semantic literature on definites

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[22]See chapter 6 for discussion of syntactic binding of definites. Note that, in principle, even such cases can receive treatment based on situational binding once we adopt a suitable situation semantics; see Kratzer (2009) for detailed discussion. Note also that the recent proposal by Barker and Shan (2008) argues that donkey anaphora can be analyzed as involving syntactic binding in a modified theory thereof.

has focused primarily on pronouns in this type of construction, but since the pertinent analyses (Berman 1987, Heim 1990, Elbourne 2005) generally see pronouns as covert definite descriptions, the analysis is expected to carry over to overt ones.

Keeping with the general approach taken in this chapter, any effects concerning the domain restriction on definite descriptions should be just the same as on quantifiers like *every*. Let's look at an example with a covarying weak-article definite, then, and see what interpretation the analysis based on the general account of covarying domains will be.

(63)  *Jeder Student, der ein Auto parkte, brachte einen Parkschein* **am**
      Every student   that a   car   parked attached a      parking-pass on-the$_{weak}$

      **Rückspiegel**   *an.*
      rear view mirror PART

      'Every student that parked a car attached a parking pass to the rearview mirror.'

(63) is most readily understood as being true iff every student put a parking pass on the rearview mirror in every car that he parked. This corresponds to what is usually called the strong or universal interpretation of donkey sentences (Kanazawa 1994, Krifka 1996, Kanazawa 2001). The standard approach in situation semantic analyses (Berman 1987, Heim 1990, Elbourne 2005, Kratzer 2007) to deriving this meaning is to quantify over minimal or exemplifying situations. Using the $EX$ operator to express exemplification, as before, a suitable denotation for *every* in our system along the lines of such previous work would be the one in (208). Note, however, that I'm ignoring the resource situation pronoun argument for the moment. It will be brought back into the picture in section 4.3.2.

(208)  $[\![every]\!] = \lambda P_{\langle e,st \rangle} \lambda Q_{\langle e,st \rangle}.\lambda s. \ \forall x \forall s_2 \ [[s_2 \leq s \ \& \ EX(P(x))(s_2)] \rightarrow$

$$\exists s_3 [s_2 \leq s_3 \leq s \ \& \ Q(x)(s_3)]]$$

Crucially, we are now quantifying over all subsituations of $s$ exemplifying the proposition resulting from applying $x$ to the property denoted by the restrictor noun phrase, which ensures the existence of a supersituation in which there is exactly one individual meeting the description, assuming there was only one in the situations exemplifying the restrictor in the first place.[23]

One notable difference between this version and the one proposed by Elbourne (2005) is that I do not introduce any exemplification for the nuclear scope. I take this to be unnecessary, because exemplifying the restrictor clause already guarantees a sufficiently restricted situation to start with (i.e., one that contains no more than one of the relevant individuals), and the presupposition of the definite ensures that the extension of that situation that is said to exist in the nuclear scope will not contain more than one such individual (as far as I can tell, nothing in my analysis hinges on this point, though). The existence of other supersituations of the restrictor-situation that contain more than one individual with the relevant property thus is irrelevant.

Exemplification was not the only ingredient of the account of covarying domains in chapter 3. For cases where the resource situation pronoun providing the domain for *every* is bound by another quantifier, we also needed a matching function (Rothstein 1995), e.g., in the analysis of (140) (Rothstein 1995).[24]

(140)    a.  Everyone finished every job.

b.  $\lambda s \forall x [\text{person}(x)(s) \rightarrow \exists s'[s' \leq s \ \& \ M(s') = x \ \& \ \forall y[\text{job}(y)(s') \rightarrow$
$$\text{finished}(y)(x)(s')]]]$$

(Kratzer 2004)

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[23]The reader may wonder what happens in cases where the situations exemplifying the restrictor contain no individual with the relevant property. I will discuss this issue in chapter 5.

[24]As before, I ignore the topic situation for the moment, and assume that the resource situation pronoun on *everyone* ends up being bound by the initial $\lambda$, and that the resource situation pronoun on the lower *every* is bound by a $\Sigma$ adjoined below *everyone*.

Including both exemplification and matching functions in our denotation for *every* yields the following entry (still ignoring the situation pronoun on *every*):

(209)  $[\![every]\!] = \lambda P_{\langle e,st\rangle}\lambda Q_{\langle e,st\rangle}.\lambda s.\ \forall x\forall s_2\ [[s_2 \le s\ \&\ EX(P(x))(s_2)] \to$
$$\exists s_3[s_2 \le s_3 \le s\ \&\ \mathbf{M}(\mathbf{s}_3) = \mathbf{x}\ \&\ Q(x)(s_3)]]$$

The meaning assigned to (140) in part depended on the matching function provided by the context. With respect to covarying interpretations of definites, we can now assess what readings we are able to capture based on the denotation for *every* in (209). Let us consider, in particular, what meanings we derive for the donkey sentence in (63), based on different options for the matching function.

(63)  *Jeder Student, der  ein Auto parkte, brachte  einen Parkschein  **am***
      Every student   that a    car    parked  attached a       parking-pass on-the$_{weak}$

      ***Rückspiegel***    *an.*
      rear view mirror PART

      'Every student that parked a car attached a parking pass to the rearview mirror.'

      a.  $[\![(63)]\!] = \lambda s.\forall x\forall s_1.\ [[s_1 \le s\ \&$
           $EX(\lambda s_3.\exists y.\text{student}(x)(s_3)\ \&\ \text{car}(y)(s_3)\ \&\ \text{parked}(x)(y)(s_3))(s_1)] \to$
           $\exists s_4[s_1 \le s_4 \le s\ \&\ M(s_4) = x\ \&\ \exists z.\text{parking-pass}(z)(s_4)\ \&$
           $\text{put-on}(x)(z)(\iota y.\text{rearview-mirror}(y)(s_4))(s_4)]]$

      b.  $M_1(s) = x$ iff $s$ contains $x$ and all the cars that $x$ parked and no other $y$ that is a student who parked a car

      c.  $M_2(s) = x$ iff $s$ contains $x$ and a car that $x$ parked and no other $y$ that is a student who parked a car

The matching function $M_1$ in (209b) is parallel to the ones we considered for (140) above. In the case of the definite here, the resulting interpretation is only felicitous if it is common ground that each farmer has exactly one donkey. Such

a reading has indeed been claimed to be available for pronominal donkey sentences (Kanazawa 2001), and as far as I am aware, it has not previously been captured in situation semantic analyses.

The other matching function, $M_2$ in (209c), gives us the standard universal (or strong) interpretation, according to which farmers can have multiple donkeys and are said to beat every donkey they own: for every minimal situation in which a student parks a car, there must be a supersituation in which the student puts a parking pass on the unique rearview mirror in that situation.

As for existential (or weak) interpretations of donkey sentences (as in *Everyone that had a quarter put it in the meter*, Schubert and Pelletier 1989), I am not aware of a proposal for capturing these in a situation semantic analysis, and, unfortunately, I have no solution to propose for this problem at the moment. One possibility that might come to mind would be to assume an analysis that only involves an 'existential' matching function as in (209c), and no exemplification, along the following lines.[25]

(210) $\lambda s.\forall x[[\exists z.[\text{student}(x)(s) \ \& \ \text{car}(z)(s) \ \& \ \text{park}(x)(z)(s)]] \rightarrow$

$\exists s'[s' \leq s \& \ M(s') = x \ \&$

$\exists y.[\text{parking-pass}(y)(s') \ \& \ \text{attach-on}(x)(y)(\iota u.\text{rearview-mirror}(u)(s')]]]]$

(209c) $M(s) = x$ iff $s$ contains $x$ and a car that $x$ parked and no other $y$ that

is a student who parked a car

This would allow for a case where there were students that parked multiple cars, though all it would require is that they put a parking pass on the rearview mirror in one of them. Accordingly, it would seem to account for the weak reading of *Everyone that had a quarter put it in the meter* in a parallel fashion. However, allowing such an interpretation results in an unwelcome weakening of the uniqueness requirement,

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[25]I'm not aware of anyone considering this possibility in the literature; as will be seen momentarily, it isn't a promising one, but it's still worth pointing out why that is so.

because of the existential quantification over parts of the topic situation in the nuclear scope. To satisfy the uniqueness requirement, it suffices for there to be at least one, but possibly several, individuals of the relevant kind in the topic situation, since then there always will be a subsituation containing exactly one. This immediately leads to false predictions. For example, we would predict the following examples to be felicitous on a covarying interpretation of the definite:

(211)   # Every student that parked a car inflated the tire.

<div align="right">Variation of an example by Roberts (2003)</div>

(212)   # *Jeder Student, der  ein Auto geparkt hat, hat einen Aufkleber am*
          every student   that a    car   parked  has  has a       sticker    on-the$_{weak}$

          *Reifen angeklebt.*
          tire      stuck
          'Every student that parked a car put a sticker on the tire.'

Assuming a matching function as in (209c) and an interpretation parallel to that in (210), this should be unproblematic, since all we have to do is find, for each student who parked a car, a matching subsituation of the topic situation in which the student inflated the unique tire (in that subsituation). However, the sentence is intuitively odd because a car has more than one tire. So allowing for the possibility of interpreting quantificational sentences with matching functions but without exemplification does not provide a solution to weak readings of donkey sentences.

Before moving on to integrating the resource situation argument on *every*, let me point out that the problem of the location of domain restriction that we saw for accounts of domain restriction that utilize a contextual *C*-variable are present in donkey sentences as well. This is problematic for accounts of donkey pronouns and definites that rely on (non-situational) domain restriction mechanisms (e.g., an 'explicit' version of Neale 1990). Below are some donkey sentences that illustrate the

same conflicting requirements for the placement of the $C$-variable within the noun phrase that we saw above.

(213) When a bunch of students play a chess tournament, the smartest student<sub>amongst the students (playing in the chess tournament)</sub> usually wins.[26]

(214) If a bunch of students<sub>in this class</sub> fall asleep, they/the students<sub>in this class (that fell asleep)</sub> will get a bad grade.

(215) When a bunch of Americans apply for a scholarship, every<sub>in the group of Americans</sub> fake philosopher usually gets one.

The first two examples, modeled after two of the arguments by Stanley (2002) and Stanley and Szabo (2000), would seem to require that the domain restriction variable is introduced with the noun phrases, as indicated by the subscripted properties. The last example, on the other hand (for which we need a context supporting the slightly odd presupposition that (usually) there are fake philosophers amongst the applicants), requires that the domain restriction is introduced higher up (e.g., with the determiner), since, as in the original examples, *American* is not understood to be in the scope of *fake*. This provides yet another reason, then, for couching an account of donkey pronouns and definites based on domain restriction in a situation semantics.

### 4.3.2 Transparent Restrictors of Donkey Sentences

Up to this point, we have ignored the resource situation pronoun on the universal quantifier (i.e., we assumed it was bound by the topic situation), but for a complete compositional analysis, we have to bring it back into the picture. Its role is, as

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[26]This sort of example also is a challenge to familiarity approaches to definites that require a linguistic antecedent; versions that simply require weak familiarity, i.e., entailment of existence, such as Roberts's (2003) will fare better in this respect.

before, to provide the situation with respect to which the restrictor is interpreted. The following entry for *every* seems to be what we would want:

(216)   $[\![every]\!] = \lambda s_r.\lambda P_{\langle e,st\rangle}\lambda Q_{\langle e,st\rangle}.\lambda s.\ \forall x\forall s_1\ [[s_1 \leq \mathbf{s}_r\ \&\ EX(P(x))(s_1)] \rightarrow$

$$\exists s_2[s_1 \leq s_2 \leq s\ \&\ M(s_2) = x\ \&\ Q(x)(s_2)]]$$

It is instructive to start by looking at how this meaning fares when applied to a case where the domain of a quantifier is interpreted relative to a contextually supplied situation:

(189)   a.   Context: You just were in the kitchen, and I know that there were cookies and a cake for a party we are having tonight. Your mouth is obviously full, and, concerned about you gobbling up all our goodies before the party, I ask you:

   b.   What did you just eat?

   c.   I ate every / all the cookie(s).

We derive the meaning in (217b) for this sentence, based on the LF in (217a), where $s_{topic}$ is understood as the actual situation exemplifying the QUD extension, as before.

(217)   a.   $[s_{topic}[\ topic\ [\ I\ [\ ate\ [[every\ s_r]cookie]]]]]$

   b.   $\lambda s.s \approx s_{topic}\ \&\ \forall x.\forall s_1[[s_1 \leq g(r)\ \&\ EX(\lambda s_2 \text{cookie}(x)(s_2))(s_1)] \rightarrow$

$$\exists s_3[s_1 \leq s_3 \leq s\ \&\ \text{ate}(I)(x)(s_3)]]$$

Note that this introduces an odd and undesirable requirement on how the various situations in this sentence relate to one another. On the one hand, $s_1$ is said to be part of the contextually supplied situation, which we take to be an actual situation (i.e., $w_{s_r} = w_0$); on the other hand, it is supposed to be a part of the counterparts $s$

of the topic situation.[27] For a situation to be a part of another situation, they have to be worldmates, i.e. part of the same world. Since $s_1$ is part of the contextually supplied situation, that means that we can only consider $s$ that are worldmates, i.e. actual situations. But that means that the entire proposition denotes a singleton set, containing only the topic situation (if it indeed meets this description).

This problem arises because, while we have introduced the counterpart relationship with the topic situation from the start, we have neglected to do so for the resource situation(s).[28]

A solution to this problem is to change the relation between the situations quantified over in the restrictor and in the nuclear scope, so that the former is not necessarily an actual part of the latter, but rather stands in a 'counterpart-part' relation to it. I define the relation $\lesssim$, where $\leq$ stands for the regular part relation between situations, as before.[29]

(218)    For any situation $s$ and $s'$, $s \lesssim s'$ iff there is an $s''$ such that $s'' \approx s$ and $w_{s''} = w_{s'}$ and $s'' \leq s'$

Our new denotation for *every* will then be the following:[30]

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[27]If the situation pronoun is bound by the topic situation, the issue disappears, of course, since there is no issue about the value of the resource situation pronoun and the counterpart of the topic situation not being worldmates.

[28]Strictly speaking, this was already a problem in our previous discussion, although there it would surface as a problem of not talking about counterparts of individuals in the contextually supplied situation.

[29]This is essentially the relation $\leq_{in}$ defined by Kratzer (Ms., 2008), though in the context of her discussion it is phrased in terms of spatiotemporal inclusion. Another difference is that she defines it as there being a counterpart of $s'$ that is an extension of $s$. For my purposes, it is more convenient to require there to be a counterpart of $s$ that is part of $s'$.

[30]To be completely precise, the matching function $M$ would have to be adapted to consider counterparts as well. This could be done either by changing our formulation of the matching function as involving matching of situations and counterparts of $x$, or by writing something like $M(s_2) = CP(x)(s_2)$ in our formula to introduce the counterpart relation there.

(219)  $\llbracket every \rrbracket = \lambda s_r.\lambda P_{\langle e,st\rangle}\lambda Q_{\langle e,st\rangle}.\lambda s.\ \forall x\forall s_1\ [[s_1 \leq s_r\ \&\ EX(P(x))(s_1)] \rightarrow$

$$\exists s_2[\mathbf{s}_1 \lesssim \mathbf{s}_2 \leq s\ \&\ M(s_2) = x\ \&\ Q(x)(s_2)]]$$

The revised analysis of the sentence under consideration then will be (220).

(220)  $\lambda s.s \approx s_{topic}\ \&\ \forall x.\forall s_1[[s_1 \leq g(r)\ \&\ EX(\lambda s_2 \text{cookie}(x)(s_2))(s_1)] \rightarrow$

$$\exists s_3[s_1 \lesssim s_3 \leq s\ \&\ \text{ate}(I)(x)(s_3)]]$$

This avoids the discussed problem, as we now are not requiring $s_1$ to be a part of the counterparts $s$ of the topic situation, but rather talk about a counterpart of $s_1$ that has that property. What quantifying over $s_1$ as parts of $s_r$ does here is to gather all the individuals in the contextually supplied situation that have a certain property ($P$) and then say that counterparts of these minimal situations containing (counterparts of) the same individuals have extensions (that are part of $s$) in which they have another property ($Q$). This is exactly the job we want it to do. Since it is common ground that there are cookies in the contextually supplied situation ($g(r)$), this suffices to ensure that the domain presupposition of the universal quantifier is satisfied. Recall that if the resource situation pronoun were bound by the topic situation, this would not be the case, since it is not common ground that there were cookies in the situation exemplifying the question extension (i.e., the common ground does not entail that cookies were amongst the things that were eaten).

We need to make sure that the same mechanism also works for cases where the restrictor of a quantifier that is in the scope of an intensional operator receives a transparent interpretation, since resource situation pronouns are supposed to handle both domain restriction and such interpretations in intensional contexts. Consider the following example.

(221)  Every student is allowed to stay.

Lets imagine the following context:

(222)   a. Context: There's a rule that only people over 21 may stay past 9pm. Younger people have to leave. There are a number of students in attendance tonight, namely John (age 23), Bill (22), and Sue (24). The door keepers are changing shifts, and the one taking over asks the previous one about who is allowed to stay past 9pm, so he doesn't have to card everyone again:

   b. Who is allowed to say?

   c. (In accordance with our rule), every student is allowed to stay.

Now, both door keepers are familiar with the rule, so the one answering the question cannot reasonably be understood to imply that the rule says that students are generally allowed to stay after 9pm. Rather, what he seems to be saying is that it happens to be the case that all the students present tonight are over 21, and that the door keeper taking over need not worry about any students having to leave by 9pm. He might simply be choosing the noun *student*, because the people falling in this category are easy to recognize. We thus have a case where the restrictor of the quantifier is interpreted relative to an actual situation, i.e. a transparent use.

To formalize the example, we need a lexical entry for the modal *allowed to*. I will use the simplified version in (223), which makes it a quantifier over situations accessible from the topic situation:

(223)   $[\![allowed\ to]\!] = \lambda p.\lambda s.\exists s'[ACC(s)(s') \rightarrow p(s')]$

This will give us the following topic situation and interpretation of the answer.

(224)   $s_{topic} = \iota s.EX(\lambda s_1.[\lambda x.\exists s_2[ACC(s_1)(s_2) \rightarrow \text{stay-past-9pm}(x)(s_2)]] =$

$\lambda x.\exists s_2[ACC(s_1)(s_2) \rightarrow \text{stay-past-9pm}(x)(s_{topic_Q})]])(s)$

& $s \leq w_0$

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(225)  $\lambda s.s \approx s_{topic}$ & $\exists s_1[ACC(s)(s_1) \rightarrow$

$$\forall x \forall s_2[[s_2 \leq s_r \ \& \ EX(\lambda s_3.\text{student}(x)(s_3))(s_2)] \rightarrow$$

$$\exists s_4[s_2 \lesssim s_4 \leq s_1 \ \& \ \text{stay-past-9pm}(x)(s_4)]]]]$$

This captures the transparent interpretation of *every student* adequately, as it makes the claim that there is an accessible situation $s_1$ consistent with the rule such that for every minimal situation $s_2$ that is part of the contextually supplied situation and contains a student $x$, there is an extension $s_4$ of a counterpart of $s_2$ that is part of $s_1$ in which (a counterpart of) $x$ stays past 9pm. Note that the counterpart of $x$ in $s_4$ need not be a student. It matters, of course, what the counterpart relation at play here is. A reasonable choice would seem to be that we are restricting ourselves to counterparts of $s_2$ in whose world the individuals in them are the same age as in the world of $s_r$, since that is the relevant property in the case at hand. They're student-hood, however, can vary, which is exactly what we want to capture the transparent interpretation - they would still be allowed to stay, whether or not they are a student, as long as they are over 21.

It is exactly what we want in this case at least. In a donkey sentence, on the other hand, we need the donkeys to be donkeys in every counterpart situation considered, since we want to pick out the unique donkey in the extension of that counterpart situation. (I'm using a standard English donkey sentence for ease of presentation; the same point holds for German weak-article definites as in (63).)

(226)  Every farmer who owned a donkey beat the donkey.

(227)  $\lambda s.s \approx s_{topic} \ \forall x \forall s_1[[s_1 \leq s_r \ \&$

$$EX(\lambda s_2.\exists y.[\text{donkey}(y)(s_2) \ \& \ \text{own}(x)(y)(s_2)])(s_1)] \rightarrow$$

$$\exists s_3[s_1 \lesssim s_3 \leq s \ \& \ \text{beat}(x)(\iota z.\text{donkey}(z)(s_3))(s_3)]]]$$

In a regular donkey sentence like this, there is no problem with that requirement, since the counterpart relation here has to hold between the contextually supplied

situation and its counterparts that are worldmates with counterparts of the topic situation. There's no reason to suppose that, in a normal context, individuals that are donkeys in the world of the topic situation should not be donkeys in these counterparts. Things get more complicated, though, if we add a modal (or another intensional operator) to the donkey sentence and encounter a transparent interpretation of the antecedent. An example might be the following:

(228)   a.  Context: There is a rule that if a detective arrests a suspect, the detective may let him go if he turns in his passport. A number of detectives arrested people that actually (though perhaps unbeknownst to the detective) are spies. These people gladly turned in their (probably forged) passports, and therefore ...

   b.  (According to the rule) Every detective that arrested a spy is allowed to let the spy go.

The sentence is not plausibly understood to claim that detectives generally are allowed to let spies go after they arrested them. Therefore, we will want to allow the consideration of counterpart situations (of the equivalent of $s_2$ in (225)) in which the actual spies are not spies. But then we can't pick out the unique spy in the nuclear scope situation ($s_3$, which is an extension of a counterpart of $s_2$), since that situation does not necessarily contain anyone that is a spy in it.

One obvious remedy would be to interpret the definite relative to the situations in the situation quantified over in the restrictor. The issue of whether covarying definites in donkey sentences should be interpreted relative to the restrictor or the nuclear scope situation actually is a familiar one in situation semantic accounts of donkey sentences. While I have followed Elbourne (2005) in assuming that a covarying definite in the nuclear scope of a quantificational sentence is interpreted relative to the situation quantified over in the nuclear scope, earlier accounts, such as Heim (1990) (as well as Büring 2004), interpret donkey pronouns relative to the situations quantified over in

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the restrictor clause. The usual motivation for choosing the latter option comes from so-called 'sage-plant' examples (Heim 1982), where additional individuals meeting the relevant description are introduced in the nuclear scope, so that the uniqueness requirement of the definite article can only be met in the restrictor situation (e.g., in *If a woman buys a sage plant here, she usually buys eight others along with it.*).[31] The transparent interpretation of the restrictor that we saw in (228) provides a novel and independent motivation for the same point.[32] However, deriving the relevant

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[31] These types of sentences, as well as the related bishop-sentences, will be discussed in chapter 6

[32] A potentially even more challenging problem arises when we consider the possibility that only the indefinite in the restrictor (but not the entire restrictor) is interpreted with respect to an actual resource situation (assuming it takes a resource situation argument). If such a configuration, indicated in the LF below, were indeed possible, this would constitute a serious problem to a situation semantic approach to donkey anaphora, for there does not seem to be a way to derive an interpretation where a definite in the nuclear scope picks out the unique spy in the situation introduced by the indefinite.

(i)  $[\lambda s[\Sigma_1[[[\text{Every } s_1] \text{ detective that arrested } [[a \ s_r \ spy]]][may \ let \ [the \ s_?] \ spy]] \ go]]]]$

Determining whether or not such a reading does in fact exist is far from trivial, though, and I will not pursue it here. As far as I can see, dynamic theories would have no problem in generating the relevant reading. Given the analysis of the strong article as involving a dynamically bound index argument, presented in chapter 6, the expectation would be that there is a contrast between the articles in the availability of this reading.

interpretation in a compositional manner constitutes a difficult challenge, which I will not pursue any further here.[33]

## 4.4 Summary

This chapter laid out a situational uniqueness analysis of weak-article definites based on the situation semantic account of domain restriction in chapter 3. The interpretation of a weak-article definite depends on the interpretation of the situation pronoun introduced by the determiner. Following the general proposal from chapter 3, there are three options for this: the pronoun can be identified with the topic situation or a contextually supplied situation, or it can be quantificationally bound. Given the central importance of the situation in which a given definite is interpreted, I spelled out a specific proposal for how topic situations can be derived from QUDs. More specifically, I argued that the topic situation of a sentence is the actual situation exemplifying the QUD. Examining some simple examples with weak-article definites in light of this proposal provided an interesting argument for a presuppositional treat-

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[33]See Büring (2004) for a proposal for doing this, though I find it problematic because it does not relate the extended situation quantified over in the nuclear scope to the situational $\lambda$-operator (which I require to be a counterpart of the topic situation). He proposes to adjoin the following extension operator '$\leq$' to the VP (which resembles Heim's (1990) proposal for interpreting an S node prefixed with a situation variable). This is then combined with his meaning for *every* to render the truth conditions below:

(i)  a. $[\![\leq]\!] = \lambda P.\lambda x.\lambda s_b.\exists s_e[s_b \leq s_e \ \& \ P(x)(s_e)]$
     b. $[\![sleep]\!] = \lambda x.\lambda s.\text{sleep}(x)(s)$
     c. $[\![every]\!] = \lambda P_{\langle e,st\rangle}\lambda Q_{\langle e,st\rangle}.\lambda s. \ \forall x \forall s_1 \ [[s_1 \leq s_r \ \& \ EX(P(x))(s_1)] \rightarrow Q(x)(s_1)]]$
     d. $[\![every \ man \ [_{VP} \leq \ sleeps \ ]]\!]^g = \lambda s.\forall x \forall s_1 \ [[s_1 \leq s_r \ \& \ EX(man(x))(s_1)] \rightarrow \exists s_e[s_b \leq s_e \ \& \ \text{sleep}(x)(s_e)]]$

A definite in the restrictor can be interpreted relative to $s_b$ if a $\Sigma$ (of the type proposed by Büring that I have introduced above) is adjoined above $\leq$. The fact that $s$ does not appear anywhere in the formula (at least if we introduce a resource situation pronoun on the determiner) is problematic in general, but the issue becomes particularly obvious in a system like the one developed here, where this situation stands for the counterparts of the topic situation. Put drastically, the formula derived here would end up making no claim whatsoever about the topic situation. I do not currently see a way of modifying the present proposal to avoid this problem.

ment of the weak article. Two specific possibilities for contextually supplied situations were encountered: first, they can be situations corresponding to locational expressions such as *the yard*; secondly, they can be topic situations of superquestions. In the last section, I presented a detailed analysis of covarying interpretations of weak-article definites. I also extended the standard account of donkey sentences to cases where the restrictor of a donkey sentence receives a transparent interpretation, highlighting again the dual function of situation pronouns for domain restriction and modal interpretations.

Some of the more challenging data involving weak-article definites form chapter 2 have yet to be discussed. First, we need to look at Hawkins's (1978) larger situation uses, which provide an interesting challenge in a situation semantic framework. I turn to these in chapter 5. Secondly, we have not yet captured all of the contrasts between the weak and the strong article presented in chapter 2. The strategy for accounting for infelicitous uses of weak-article definites in the present analysis is clear, given the present analysis, however: we will have to appeal to a failure of the situational uniqueness presupposition. Since a full understanding of the contrasts requires an analysis of strong article definites, I defer discussion of these cases until chapter 6.

# CHAPTER 5

# LARGER SITUATION USES

In this chapter, I turn to the category of larger situation uses in Hawkins's (1978) classification. These pose an interesting challenge for any theoretical analysis of the meaning of the definite article. From the perspective of a situation semantic analysis, this challenge presents itself in a particularly interesting way. Consider the type of example that Hawkins discusses, e.g., the one of the definite description *the prime minister*, uttered somewhere in the United Kingdom. The default understanding of this is that the speaker intends to pick out the prime minister of the United Kingdom. Unlike in Hawkins' immediate situation uses (corresponding to cases where a definite is interpreted relative to the topic situation or certain contextually supplied situations in our analysis), this case must involve some further inferencing about what situation needs to be taken into consideration in interpreting the definite.

The account I develop builds on the fact that the NP complement of the definite determiner in these cases is a (certain type of) relational noun. Adapting independently needed type-shifting mechanisms to our situation semantics provides a general mechanism for getting to an appropriate larger situation in which the description of the definite can be successfully interpreted. A distinct mechanism is held accountable for cases of covarying definite descriptions in similar configurations that do not have a relational NP-complement. Specifically, I propose to analyze these with the help of the matching functions that I argued to be introduced as part of the nuclear scope of quantifiers such as *every* in chapter 3, section 3.2.2.3. A crucial difference between these two types of cases is that the latter, but not the former, generally depends

on contextual support for the matching function. While appealing to two distinct mechanisms might, at first sight, seem to yield an unnecessarily complex and ornate theory, I maintain that the account is both empirically motivated and theoretically parsimonious, as both mechanisms are independently needed.

## 5.1   The Problem of Larger Situation Uses

Since we are concerned with the German articles, let me begin by introducing a simple German example with the weak article which illustrates the same point as Hawkins' *the prime minister*.[1] It is a variation of the global use in (192c) above, the difference being that *pope* has been replaced by *mayor*.

(229)    a.  Context: Hans just came home from work and is talking to his wife about what's new.

b.  What did the mailman bring today?

c.  *Für dich ist ein Brief vom        Bürgermeister gekommen.*
for  you  is  a   letter from-the$_{weak}$  mayor         come
'You got a letter from the mayor.'

I take it that the intuitive understanding is as clear as in Hawkins' case of *the prime minister*, uttered in the U.K. (assuming there is no additional contextual information that might make other interpretations available): we understand the sentence to be about the mayor of the town (or city) that Hans and Maria live in. How can we capture this interpretation?

Within the analysis developed in chapter 4, the main question for interpreting the definite $[[the_{weak} \quad s_r] \; mayor]$ is what situation the situation pronoun $s_r$ introduces. Since the sentence does not involve a potential quantificational binder, there are,

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[1]As far as I can tell, the English paraphrases all behave completely parallel, except, of course, for the cases where the article contrast becomes relevant in German.

in principle, two options: it can be identified with the topic situation or with a contextually salient situation, as indicated in the following LF:

(230)  $[s_{topic}$ $[topic$ $[\Sigma_1$ $[for\ you$ $[[a\ letter$ $[from$ $[[the_{weak}\ s_{r/1}]$ $mayor\ ]]]\ came\ ]]]]]$

However, given the way we have come to understand the notion, the definite here cannot be interpreted relative to the topic situation derived from the QUD (namely, the actual situation exemplifying the question *What did the mailman bring today?*). Just as the pope had not come in the mail in (192c), the mayor has not in (229c). Therefore, the definite description cannot pick out anything successfully if interpreted with respect to that situation.

What about the option of a contextually supplied situation? Unlike in the case of *the_weak pope* in (192c), we cannot resort to letting the assignment function provide the world of $s_{topic}$ $(w_{s_{topic}})$ as the value for the index $r$, since there are many mayors in the world. But perhaps the situation containing the town that Hans and Maria live in could be available in the context. Assuming it is common ground that the town has a unique mayor, the definite would then successfully pick out its mayor in that situation. While this might be a possible analysis of (229c), it will not suffice as a general account, because the same phenomenon arises in quantificational examples, such as (231).

(231)  *An jedem Bahnhof,   in den   unser Zug einfuhr,   wurde mir ein Brief*
       At  every  train station in which our   train entered into was   I   a   letter

       *vom        / #von dem     Bürgermeister überreicht.*
       from-the_weak / from  the_strong mayor          handed

       'At every train station that our train entered a letter from the mayor was handed to me.'

This sentence is understood as claiming that in each train station, I was handed a letter from the mayor of the town that we are in at the time, i.e., it involves a covarying interpretation of the weak-article definite *the_weak mayor*. But if we want

to derive a covarying reading, the definite cannot be interpreted relative to just one contextually given situation. At the same time, it is not clear that we can simply interpret the definite in the situation quantified over: we are quantifying over situations that exemplify our train entering a train station, and these situations do not (generally) contain a mayor, as becomes clear by looking at the interpretation we would derive in our system if the situation argument of the definite was bound by the quantifier over situations introduced by *every*.[2]

(232)  $[\![(231)]\!] =$

$\lambda s \forall x \forall s_1 [[s_1 \leq s \, \&$

$EX(\lambda s'.\text{trainstation}(x)(s') \, \& \, \text{enter}(\text{OURTRAIN})(x)(s'))(s_1)] \rightarrow$

$\exists s_2 [s_1 \lesssim s_2 \leq s \, \& \, \exists y[\text{letter}(y)(s_2) \, \&$

$\text{from}(y)(\underline{\iota z.\text{mayor}(z)(s_2)}) \, \& \, \text{was-handed}(I)(y)(s_2)]]]$

One issue that becomes relevant at this point again is whether we choose to interpret situation pronouns of definites that receive a covarying interpretation relative to the situations quantified over in the restrictor, or those in the nuclear scope. For the most part, I have been assuming the latter, but we saw at the end of chapter 4 that there are reasons for allowing the former option as well. In any case, given the current problem, the nuclear scope option seems more promising. There certainly is no mayor in the $s_1$-situations, which exemplify our train entering a train station. But $s_2$, the situation existentially quantified over in the nuclear scope, is an extension of $s_1$. Can we simply take any extension of $s_1$ that contains exactly one mayor? The answer to this question requires some more complex considerations, which I present in the following section.

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[2]For ease of presentation, I simply represent our train by the individual constant 'OURTRAIN', without analyzing the corresponding possessive description.

## 5.2 Presuppositions and Matching Functions in the Nuclear Scope

The issue we are dealing with in quantificational versions of larger situation uses, such as in (231), is that the situations quantified over do not contain a mayor.

(231)  *An jedem Bahnhof,    in den   unser Zug  einfuhr,    wurde mir ein Brief*
       At  every  train station in  which our    train entered into was     I     a     letter

       *vom             / #von dem        Bürgermeister überreicht.*
       from-the$_{weak}$ / from  the$_{strong}$ mayor           handed

       'At every train station that our train entered a letter from the mayor was handed to me.'

But as was pointed out at the end of the last section, there is additional existential quantification in the nuclear scope over extensions of the restrictor situations. Maybe we can just choose these extensions in a way that suits our needs and thereby ensure that we end up with situations that each contain exactly one mayor. This could essentially be seen as a form of accommodation (Lewis 1979): the situations at hand don't contain a mayor, so let's just consider extensions of them that do. However, such an approach would lead to a number of problems.

First, it would not be clear whether we would include the right mayor in the respective situations. An extension of a given situation that contains a mayor will not necessarily involve a mayor that is related to the initial situation in any particular way. But our understanding of (231) is that the letters I am handed are from the mayors of the respective towns that we are stopping in.

Secondly, it is questionable whether we would have any serious hopes for predicting what sorts of noun phrases this process works for. It is often noted that noun phrases differ dramatically with respect to how easily a definite containing them can be accommodated. Usually, variation in ease of accommodation is taken to be due to the plausibility, or relative element of surprise, associated with a given noun and topic

of conversation (for recent discussions, see Beaver and Zeevat 2007, von Fintel 2008). However, with respect to (231) there is a distinct difference between nouns that denote roles that are (at least) typically unique within a given environment and nouns that are not. Try substituting *mayor* in (229) or (231) with any of the nouns from the following list:

(233)   *Bankkaufmann, Hundebesitzer, Straßenfeger, Kassierer, Minister*
        banker,          dog owner,       street cleaner, cashier,       minister

It is not immediately clear why these should be less plausible or more surprising than, say, *mayor*. Nonetheless, they would yield a distinctly more marked status of the example than in the form in (231).[3] I would argue that this is because *mayor* (as well as *governor*, and many similar nouns) denotes a role that is unique within its respective domain of the world. This suggests that we not only add an individual with the property denoted by the noun phrase of the weak-article definite to the extended situation, but interpret the definite in relation to this larger part of the world. It fits with this picture that to the extent that the nouns considered in (233) *can* be interpreted felicitously, the individuals they introduce have to be understood as playing a unique role relative to Hans and Maria or their house in (229), or to the train station in (231).

More generally, it is doubtful whether we could provide an accommodation-based account that does not undermine the presuppositional nature of definites. A problem related to this issue, which also arises in quantificational sentences that contain a definite in their nuclear scope without there being an individual meeting the relevant description in the restrictor, has been pointed out by Daniel Büring.[4] The problem

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[3]The same would hold for the non-quantificational (229c), which shows that these criticisms would also apply if we pursued an accommodation approach for such cases.

[4]Büring (2004, pp. 42-45) discusses the problem in some detail. Paul Elbourne discusses the issue in his 2003 MIT thesis (later published as Elbourne (2005)) as well (see below), but attributes the basic observation to Büring.

is that an interpretation where the situation argument of the definite is interpreted relative to the situation existentially quantified over in the nuclear scope seems to give rise to some predictions that are clearly false. Büring (2004, p. 43) presents the scenario and example sentence in (234) to illustrate the point.

(234)   a.  Scenario: Every man in Athens worships two or more goddesses, but there is no goddess worshiped by every man.

     b.  Every man in Athens worships the goddess.

<div align="right">(Büring 2004, p. 43)</div>

The predicted truth conditions Büring considers for this sentence on the problematic interpretation are the following (my formulation):

(235)   $\lambda s$. For every $x$ and every situation $s_1 \leq s$ such that $s_1$ is a minimal situation in which $x$ is a man, there is a supersituation $s_2$ in which $x$ worships (in $s_2$) the unique goddess in $s_2$

With these truth conditions, he argues, the sentence in (234) should be true in the given scenario, since for every minimal situation containing a man, there is indeed an extension containing exactly one goddess that the man worships. But intuitively, the sentence is, of course, false (or inappropriate) in the scenario. The conclusion Büring draws from this is that we should not allow definites to be interpreted relative to the situation quantified over in the nuclear scope (he also presents some potential independent motivation for this restriction within his system).

However, such a move would not be of any help with respect to our problem of larger situation uses, since their structure seems parallel in the relevant respects, yet they do allow for a covarying interpretation. Furthermore, as Elbourne points out in his discussion of the issue (Elbourne 2005, pp. 59-64), if the context is rich enough to provide a general connection between the situations quantified over in the restrictor and an individual meeting the relevant description in a 'matching' supersituation,

covarying readings of sentences like (234) become completely natural. He provides the following examples to make the point.

(236)  Every man liked the woman.                              (Elbourne 2005, p. 60)

(237)  Each man was paired with a different woman for the training exercise. Fortunately, every man liked the woman, and things went smoothly.  (Elbourne 2005, p. 63)

(236) is completely parallel to (234) and does not seem to allow for a covarying interpretation. But the contextualized version in (237) does allow for such an interpretation, which requires the possibility of interpreting the definite in the nuclear scope situation.[5]

There are other examples that require an interpretation of the situation pronoun of a covarying definite relative to the situation quantified over in the nuclear scope as well. For example, take cases involving a complex nuclear scope that includes a conjunction, where an individual is introduced (directly, via an indefinite, or indirectly, as part of something else) in the first conjunct and then picked up again by a definite in the second conjunct, as in (238).

(238)  Everyone that won a large cash-prize bought a car and painted the steering-wheel golden.

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[5]Similar examples have also been discussed in the literature on distributivity. Winter (2000), for example, provides the following example where the definite *the target* receives a covarying interpretation:

(1)  a. At a shooting range, each soldier was assigned a different target and had to shoot at it. At the end of the shooting we discovered that . . .
     b. . . . every soldier hit the target.

(Winter 2000, p. 36)

Chierchia (1995) also presents numerous relevant examples, some of which will be discussed in detail in section 5.3 and chapter 6.

*The steering wheel* here is clearly understood to be the one of the car that was said to have been bought in the first conjunct. If we introduced a steering wheel (or a car) via some process of accommodation or the like in the restrictor situation, we would not capture this, as the definite should either be infelicitous (because there would be more than one steering wheel in the nuclear scope situation) or pick out a steering wheel other than the one introduced in the nuclear scope. This leaves no way around admitting that the resource situation pronoun can be interpreted relative to the situation quantified over in the nuclear scope.

Finally, considering the broader picture of situational domain restriction that we have developed in chapter 3, within which definites simply represent a special case, ruling out the possibility of interpreting resource situation pronouns relative to the situation quantified over in the nuclear scope would also be problematic with respect to our analysis of covarying quantifier domains as well. Recall the case of a covarying domain of an embedded quantifier.[6]

(140)    a.  Everyone finished every job.

        b.  $[\![(140)]\!] = \lambda s.\forall x\forall s_1.\ [[s_1 \leq s\ \&\ EX(\lambda s_3.\text{person}(x)(s_3))(s_1)] \rightarrow$

$$\underline{\exists s_4}[s_1 \lesssim s_4 \leq s\ \&\ M(s_4) = x\ \&$$

$$\forall y\forall s_5[\underline{[s_5 \leq s_4\ \&\ EX(\lambda s_6.\text{job}(y)(s_6))(s_5)]} \rightarrow$$

$$\exists s_7[s_5 \lesssim s_7 \leq s_4\ \&\ \text{finished}(x)(y)(s_7)]]]]$$

It is essential for the covarying interpretation of the domain in (140) that the resource situation pronoun on the embedded *every* is interpreted relative to the situation quantified over in the nuclear scope, since there are no jobs that are part of the situations quantified over in the restrictor. This is, in fact, completely parallel to

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[6]I'm now using the lexical entry from chapter 4, section 4.3.2, in (219), repeated below.

(219)  $[\![every]\!] = \lambda s_r.\lambda P_{\langle e,st\rangle}\lambda Q_{\langle e,st\rangle}.\lambda s.\ \forall x\forall s_1\ [[s_1 \leq s_r\ \&\ EX(P(x))(s_1)] \rightarrow$

$$\exists s_2[\mathbf{s}_1 \lesssim \mathbf{s}_2 \leq s\ \&\ M(s_2) = x\ \&\ Q(x)(s_2)]]$$

the sentence in (234), where there is no goddess introduced in the restrictor either. However, what is also important is that we couldn't just take any extension of the restrictor-situation, as that would deprive *every* of its universal force, in a way similar to how the uniqueness requirement of the definite in (234) is essentially lost if we assume the truth conditions in (235).

These parallels suggest that we should seek the same type of solution to the issue Büring raises with (234) as we proposed for (140). The key for the latter was, of course, the presence of a matching function, which ensured that we are looking at the right type of extension of the restrictor situation, namely one that contains all the jobs assigned to the relevant person.[7] In our system, a matching function is introduced with *every*, anyway, so that the interpretation we derive for (234) looks as follows.

(234)     a.  Scenario: Every man in Athens worships two or more goddesses, but there is no goddess worshiped by every man.

        b.  Every man in Athens worships the goddess.

<div align="right">(Büring 2004, p. 43)</div>

(239)  $\lambda s.s \approx s_{topic}\ \forall x \forall s_1[[s_1 \leq s_r\ \&\ EX(\lambda s_2.\mathrm{man}(x)(s_2)])(s_1)] \rightarrow$

$$\exists s_3[s_1 \lesssim s_3 \leq s\ \&\ \underline{M(s_3) = x}\ \&\ \mathrm{worship}(x)(\iota z.\mathrm{goddess}(z)(s_3))(s_3)]]]$$

This means that the extensions ($s_3$) of the restrictor situation ($s_1$) can't just be any supersituation. They have to be mapped to $x$ by the matching function. So whether or not we predict (234) to be true depends on whether there is a matching function that makes the intended interpretation possible. But in order for the right type of matching function (i.e., one that ensures a felicitous interpretation of the definite) to come into play, it has to be provided by the context, which is not the case

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[7]The fact that we, unlike Büring, require the situation quantified over in the nuclear scope to be part of $s$ (the counterpart of the topic situation) can also become relevant here, depending on whether the QUD is such that there will be goddesses in the topic situation.

in the scenario provided by Büring.[8] The scenario provided by Elbourne in (237), on the other hand, is engineered to provide a suitable matching function, as indicated in the analysis below.[9]

(237) Each man was paired with a different woman for the training exercise. Fortunately, every man liked the woman, and things went smoothly.

a. $\lambda s.s \approx s_{topic} \ \forall x \forall s_1[[s_1 \leq s_r \ \& \ EX(\lambda s_2.\mathrm{man}(x)(s_2)])(s_1)] \rightarrow$

$$\exists s_3[s_1 \lesssim s_3 \leq s \ \& \ \underline{M(s_3) = x} \ \& \ \mathrm{like}(x)(\iota z.\mathrm{woman}(z)(s_3))(s_3)]]]$$

b. $M(s) = x$ iff $s$ contains $x$ and the woman he was paired with

(and no one else)

An account based on a matching function thus allows us to capture the dependence of covarying interpretations in the sentences in question on a suitable context, namely one that provides the right type of matching function to render the covarying interpretation of the definite felicitous.[10]

The general insight for examples like (234), (236), and (237), which essentially is the one presented by Elbourne (2005), is that the presupposition of a definite in the nuclear scope of a quantificational sentence has to be satisfied in a uniform type of supersituation of the restrictor situation, i.e. the context has to supply some general method of selecting a supersituation for the minimal situations quantified over in the restrictor. Matching functions provide exactly that. Implementing this

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[8]Büring's scenario introduces the additional problem of there being at least two goddesses for each man; interestingly, an account based on matching functions does not exclude the possibility of a man worshiping more than one goddess, as long as the matching function only matches situations to the man that contain exactly one of them. This strikes me as correct, as a man could worship one goddess on one occasion and another one on another occasion. It all depends on how the situations quantified over are set up by the context and the matching function.

[9]Elbourne does not present his proposal in terms of a matching function, but I think it is fair to say that matching functions (which, as we have seen, are independently needed) represent a straightforward formal implementation of his characterization of the issue.

[10]There's an interesting question as to whether there are overt expressions that introduce matching functions. Adjectives like *respective* or German *jeweilig* might be good candidates for this.

generalization fully into our semantics would require a fleshed-out presupposition theory for a situation semantics. For our purposes, it suffices to see that definites in quantificational contexts do not lose the force of their presupposition, which can't simply be satisfied by the fact that any situation that does not contain a woman can be extended to one that contains exactly one (as long as women exist in the world of that situation).

## 5.3 Contextual Matching Functions and Relational Nouns

### 5.3.1 The Role of Context for Covarying Interpretations

In the previous section, we saw that matching functions allow us to account for certain quantificational sentences that contain a definite description in their nuclear scope but do not introduce an individual meeting this description in their restrictor. Since we see such quantificational structures as quantifying over situations that exemplify the (proposition derived from the) restrictor and as saying that a certain proportion of them (depending on the quantificational force) have extensions which fit the nuclear scope, the basic setup in such cases (e.g., in 237) is exactly the same as in the quantificational version of larger situation uses such as in (231).

(231)  *An jedem Bahnhof,    in den   unser Zug einfuhr,   wurde mir ein Brief*
       At  every  train station in which our   train entered into was   I   a   letter

       *vom          / #von dem      Bürgermeister überreicht.*
       from-the$_{weak}$ / from  the$_{strong}$ mayor           handed

       'At every train station that our train entered a letter from the mayor was handed to me.'

Here, too, we are quantifying over situations in the restrictor that don't contain a mayor that the definite *the$_{weak}$ mayor* can pick out, but still somehow manage to arrive at a covarying interpretation of the definite without a problem. So it seems only natural to ask whether matching functions provide a general solution to the problem

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of larger situation uses.[11] While in principle, it is always theoretically appealing to capture as many cases as possible with a given mechanism, one problem immediately presents itself for such an approach. It concerns the role of context in providing the matching function.

We saw in our discussion of examples like Büring's (234), and especially in the comparison of (236) and (237) from Elbourne, that explicit contextual support is typically needed to establish a suitable matching function.[12]

(236)   Every man liked the woman.                           (Elbourne 2005, p. 60)

(237)   Each man was paired with a different woman for the training exercise. Fortunately, every man liked the woman, and things went smoothly.   (Elbourne 2005, p. 63)

But in the case of the larger situation use in (231), there is practically no demand on the context to supply anything at all. All that it requires is a basic combination of lexical and world knowledge that towns and cities (typically) have a unique mayor and that train stations (typically) are in a town or a city. And this is not just the case for descriptions containing *mayor*, but can easily be replicated for other nouns of a similar nature:

(240)   *Jeder Professor (an der UMass) bekam   einen Brief vom        Dekan.*
         every professor  (at the UMass) received a      letter from-the$_{weak}$ dean
         'Every professor (at UMass) received a letter from the dean.'

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[11]I should note that Elbourne (2005) mentions the following type of example in his discussion of the issue we looked at in the previous section. As I will argue in the following section, this type of example (which arguably involves a part-whole relationship) should indeed be analyzed along the same lines as our larger situation uses.

  (i)   Every time a ship enters rough weather, the captain orders the sails to be trimmed.

[12]Note that there is an important difference between claiming that the value of a contextual variable is provided by the context and merely claiming that there exists a suitable value. This issue has been discussed in some detail in the literature on choice functions (Kratzer 1998, Kratzer 2003)

(241)  *Jedes Mal, wenn ein Botschafter seine Eltern  zu Hause besuchte, bekam er*
      each   time  when  an  ambassador  his    parents at home   visited     got      he

      *einen Anruf vom        Staatsoberhaupt.*
      a      call    from-the$_{weak}$ head of state

      'Each time an ambassador visited his parents at home, he got a call from the head of state.'

Furthermore, examples with multiple definites of this kind can easily be constructed, as witnessed in the following example.

(242)  Context: John is a CEO with offices in several major cities around the U.S. Last month, he traveled to all of them to check in with his secretaries.

      *Jede  Sekretärin wies    ihn darauf hin, dass er einen Brief vom*
      every secretary   pointed him there   out  that  he  a      letter from-the$_{weak}$

      *Gouvernör und eine Grußkarte   vom        Bürgermeister bekommen*
      governor    and a    greeting card from-the$_{weak}$ mayor        received

      *hat.*
      had

      'Every secretary pointed out to him that he had received a letter from the governor and a greeting card from the mayor.'

Just as in the previous examples, this sentence imposes no substantive requirement on the context in order to make the covarying interpretation available, unlike in what we saw for the initial data that motivated the use of matching functions.[13]

Examples with multiple such definites help to highlight an additional issue that is important for the current discussion. One promising approach to explaining the lack

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[13]In the original English example (140: *Everyone finished every job*), the requirements on the context may be easier to meet than in the case of *Every man liked the woman*, but they still seem to be more involved than what the examples we are now looking at seem to call for. It is perfectly expected, on a story based on context, that knowledge about relationships between types of objects in the world can make a difference. It seems natural to assume that different jobs are assigned to different people. If we change the example to *Everyone answered every question* or *Everyone looked at every picture*, the requirement for contextual support becomes stronger in order to allow for a covarying interpretation.

of contextual requirements with larger situation uses would seek to find an explanation based on some property (or properties) of the nouns involved (in fact, I will do just that below). An analysis based on a matching function that is introduced in the nuclear scope of quantifiers would then have to find a way of letting this property of the noun (help) determine the matching function. But how should this work in the case of multiple nouns? The matching function for (242) would have to be fairly complex, given that both the relevant mayor and the relevant governor will have to be included in the situation quantified over in the nuclear scope. The procedure by which nouns that are part of descriptions appearing in the nuclear scope of a quantifier can affect the content of a matching function thus would have to get rather complex to capture these cases without compromising the uniqueness requirement of the definites.

### 5.3.2   A Special Role for Relational Nouns in Domain Restriction?

Putting aside the question of whether matching functions indeed can provide a full account of larger situation uses momentarily, let us consider in more concrete terms what property of the nouns in the relevant examples might be responsible for allowing covarying interpretations without any contextual support. One property that all the nouns we have seen in the relevant types of examples share is that they are relational nouns.[14] *Mayor*, for example, would have to the lexical entry in (243) (to be read as '$x$ is the mayor of $y$'):

(243)   $[\![mayor]\!] = \lambda y.\lambda x.\text{mayor}(x)(y)$

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[14]In English, relational nouns can be identified by their ability to appear with an *of*-possessive (as in *mayor of Berlin, crisper of the fridge*, etc.) (Barker 1995, Barker and Dowty 1993). In German, there is a parallel possessive with the preposition 'von' as an alternative to the genitive form (as in *Gemüsefach von dem Kühlschrank* 'crisper of the fridge'), but I'm not entirely certain whether the availability of this form indicates the relationality of a noun as reliably as in English. The relational status of the cases I will discuss will be fairly uncontroversial, however.

The possibility that relational nouns can play a special role in domain restriction has indeed been considered before. Chierchia (1995) discusses it in connection with his analysis of definites, and Martí (2003) raises the issue more generally in her discussion of domain restriction.[15] The general idea is that a relational noun comes with an implicit 'relatum' argument[16], and that this argument can be bound. For example, in

(244)   Most Wall Street companies give every manager a bonus.

*manager* introduces an implicit argument for the organization that the manager is a manager of, and the subject quantifier, which quantifies over an appropriate subset of organizations that have managers, could be seen to bind the relatum argument directly, resulting in an interpretation paraphrasable as 'most Wall Street companies x give every manager of x a bonus.'

However, there is a fairly general consensus that such an account is not general enough. Both Chierchia and Martí point to cases of what amounts to a covarying interpretation of a domain restriction that do not involve relational nouns (essentially variants of our examples (140) and (237) above). Martí further argues that even cases where a relational noun has an overt relatum argument, as in (245), can receive a covarying interpretation of their domain restriction when there is sufficient contextual support, which would be unexpected if binding an implicit relatum argument were the only way of making such an interpretation available.

(245)   The business professors gathered in the faculty room. The meeting was about
        the companies with which the School of Business has close contacts. Several of

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[15]The issue has been noticed in earlier work as well. For example, Neale (1990) mentions a discussion of cases involving the noun *mayor* by Evans (1982). Mitchell (1986) and Partee (1989) also discuss various cases of implicit variables (the former in an early application of situation semantics). See section 5.4 for a brief discussion of some of the relevant data.

[16]There does not seem to be a fully conventional terminology for this, but I will stick to 'relatum' throughout, regardless of what the authors I discuss may call it.

them have had close contact with several representatives from those companies
lately. Every professor admires every representative of Kodak.

<div align="right">(Martí 2003, p. 35)</div>

The conclusion that both Chierchia and Martí draw from the respective points
they bring forth is that there has to be a general domain restriction mechanism
that utilizes what comes down to be a relational $C$-variable of the sort we discussed
in chapter 3. Relational nouns may commonly play a role in allowing a covarying
interpretation (by somehow affecting the choice of the value assigned by the context
to the $C$-variable), but they are not the only way of providing the relevant effects.

I am in complete agreement with the last point, since it's clear that there are
covarying readings of definites with non-relational nouns. The question is, however,
whether there is one general mechanism that works both for relational nouns and
non-relational nouns, or whether there is some special way in which (certain) rela-
tional nouns can make covarying interpretations of definites containing them available.
While $C$-variable approaches are generally designed to cover both types of cases, I
will argue below that different mechanisms come into play. Both of the mechanisms
are independently motivated, however, so that no additional machinery needs to be
added to our system.

### 5.3.3   Two Mechanisms that Give Rise to Situational Covariation

We have already seen that covarying interpretations of DPs containing non -
relational nouns can be captured by means of an independently motivated mechanism,
namely that of matching functions in the nuclear scope of quantifiers. The German
sentence with a weak-article definite in (246) is another illustration of an example of
this kind.

(246)  a. Context 1: We're in a hotel for tea lovers. **Each room is equipped with a** tea pantry containing an exquisite tea collection and everything you need to make tea. During her room-cleaning routine, a mischievous maid filled up all water jugs with vodka...

   b. Context 2: We're in a hotel for tea lovers. **On each floor there is** a tea pantry containing an exquisite tea collection and everything you need to make tea. During her morning room-cleaning routine, a mischievous maid filled up all water jugs with vodka...

   c. *Deshalb hat gestern   morgen jeder Gast Wodka statt     Wasser*
   therefore has yesterday morning every guest vodka   instead of water

   *im         Wasserkocher erhitzt.*
   in-the$_{weak}$  electric kettle  heated
   'Therefore, every guest heated vodka instead of water in the water boiler yesterday morning.'

The noun *Wasserkocher* ('electric kettle') clearly is not relational, but receives a covarying interpretation. Crucially, the exact nature of the covarying interpretation depends on the contextual setup. In Context 1, it is interpreted to be the one in the guest's room, and in context 2, it is the one on the floor that the guest's room is located on. These interpretations depend on a sufficiently rich context, just as we would expect when a matching function is involved.[17]

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[17]Note that an account in terms of matching functions only works for quantificational cases, since the matching function is introduced by the quantifier. But in rich contexts like the ones for the present example, non-quantificational sentences allow for a parallel interpretation as well:

(i)  a. Contexts as in (246)
   b. *Deshalb   hat Hans gestern    morgen    aus Versehen Wodka statt      Wasser*
   therefore has Hans yesterday morning  by  accident vodka instead of water
   *im         Wasserkocher  erhitzt.*
   in-the$_{weak}$  electric kettle heated
   'Therefore, Hans accidentally heated vodka instead of water in the water boiler yesterday morning.'

In our system, such non-quantificational cases can be captured by letting the definite be interpreted relative to a contextually salient situation. While I do not provide a full account of how situations

Other cases involving covarying domains with a non-relational head noun that are captured by a matching function include Martí's (2003) example (245), where the relatum argument of a relational noun is filled explicitly, and thus contains no implicit relatum variable that could play a role in domain restriction.

(245)   The business professors gathered in the faculty room. The meeting was about the companies with which the School of Business has close contacts. Several of them have had close contact with several representatives from those companies lately. Every professor admires every representative of Kodak.

(Martí 2003, p. 35)

As expected, a covarying interpretation (where different professors can admire different sets of representatives of Kodak), is dependent on strong contextual support, which is provided in the example.

Yet another case that needs to be captured with a matching function in the account I propose is (247), from Chierchia (1995) (who uses it as part of an argument in favor of contextually supplied relations).

(247)   Every boy played a piece and then put the music sheets away.

(Chierchia 1995, p. 224)

This case differs from most others that we have seen in that the relationship between pieces of music and music sheets is sufficiently established in general world knowledge that no strong contextual support is needed to make a suitable matching function available. As I noted before, some variation along these lines is expected on a contextual account. Indeed, the original examples that motivated matching functions (such as Rothstein's (1995) *Every time the bell rings, Mary opens the door*) rely on

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become salient in a context, one possibility that we have encountered before included the location denoted by a locative expression in prior discourse. The way the contexts are presented in (246), either the room or the floor are explicitly introduced and thus would be expected to make situations corresponding to them contextually salient.

matching functions that are so commonly known that they do not require explicit introduction in the context.

In addition to covarying interpretations due to (independently needed) matching functions, I propose that other covarying interpretations are due to a mechanism that makes use of the relatum argument of (certain) relational nouns. What warrants the introduction of such an additional mechanism? First of all, as will be spelled out in detail in the next section, the key ingredient is independently needed, and the relevant covarying interpretations essentially fall out for free. In particular, I argue that there is a type-shifter for relational nouns that makes them non-relational, and which, when adapted to our situation semantic framework, automatically accounts for the relevant readings.

Secondly, we have already seen that there may be some difficulties in assigning relational nouns a role in affecting domain restriction within a more general account in terms of matching functions. In particular, cases with multiple larger situation definites, such as (242), repeated here from above, raise the issue of how exactly the lexical content of the relational nouns in these two definites affects the choice of the matching function (which applies to the entire nuclear scope situation, and thus has to include both a mayor and a governor), which in turn has to be quite complex (and yet does not seem to require any elaborate contextual setup).[18]

(242)  Context: John is a CEO with offices in several major cities around the U.S. Last month, he traveled to all of them to check in with his secretaries.

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[18]Note that a $C$-variable account would not face the same problem as one based on matching functions, as one of the key advantages of the former is that it provides domain restriction at the level of each individual noun phrase. Nonetheless, such a $C$-variable approach still would owe us an account of how exactly it is that the lexical relation denoted by a noun can (help) determine the value of the variable, and how this relates to other ways that the value of this variable can be supplied, which need to be fairly restricted, given the awkwardness of examples such as (234) and (236), where the lack of context makes a covarying interpretation impossible.

*Jede Sekretärin wies    ihn darauf hin, dass er einen Brief vom*
every secretary    pointed him there    out that he a    letter from-the$_{weak}$

*Gouvernör und eine Grußkarte    vom    Bürgermeister bekommen*
governor    and a    greeting card from-the$_{weak}$ mayor    received

*hat.*
had

'Every secretary pointed out to him that he had received a letter from the governor and a greeting card from the mayor.'

A further attractive aspect of an account that incorporates the two distinct mechanisms considered here is that it provides an understanding of why covarying interpretations of DPs involving relational nouns do not depend on the context, whereas cases involving a matching function generally do. The former will be directly dependent on the lexical content of the noun phrase inside of the definite, while the latter requires contextual support for the matching function. This, in turn, allows us to avoid some of the problems that any account (whether it is one based on a matching function or a *C*-variable) that lets the context do all the work faces in balancing the need for providing a sufficiently restrictive picture as well as for allowing lexical content affect the choice of values for free variables.

Before turning to the discussion of how exactly relational nouns can affect situational domain restriction to yield covarying interpretations in the next section, let me note some of the challenges that such an account will have to face.

First, in the examples we have looked at, the relation provided by the noun itself does not seem to provide us exactly with what we need. Consider (231), once again:

(231)    *An jedem Bahnhof,    in den    unser Zug einfuhr,    wurde mir ein Brief*
At every    train station in which our    train entered into was    I    a    letter

*vom    / #von dem    Bürgermeister überreicht.*
from-the$_{weak}$    / from    the$_{strong}$ mayor    handed

'At every train station that our train entered a letter from the mayor was handed to me.'

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A mayor is a mayor of a town or a city, not a mayor of a train station. But (231) does not directly introduce an appropriate entity that a mayor is the mayor of.[19] That means that we can't just bind the relatum argument of *mayor* and use the very relation denoted by the noun. If we still want that relation to play a role, which I think is desirable, we have to find some way of implementing this indirectly.

Secondly, there is another argument against simply using the relatum argument of the relation introduced by the verb (e.g., by letting it provide the value for the *C*-variable) that is provided by the bridging data we have seen in chapter 2 in connection with the German article contrast. There we saw that some types of bridging clearly prefer to be expressed with the strong article. This included the following example:

(62)  *Jeder,   der einen Roman gekauft hat, hatte schon   einmal eine*
      Everyone that a    novel   bought has  had    already once    a

      *Kurzgeschichte #vom   / ✓ von dem   Autor gelesen.*
      short story   by-the$_{weak}$ / by   the$_{strong}$ author read
      'Everyone that bought a novel had already once read a short story by the author.'

*Author* is a relational noun. If it were only the relationality of the noun that made the covarying interpretation in larger situation uses (which are expressed with the weak article) possible, then we would seem to expect the weak article here to be just as good as in the cases above, which it is not.[20] In other words, the German data argue against a view on which the relationality of a noun is sufficient for making a covarying interpretation of a weak article definite possible. That leaves open the possibility that it is nonetheless necessary for a specific mechanism that allows for such readings (which does not display the same contextual dependency as matching functions).

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[19]Note, however, that it has to be common ground that the train stations quantified over are uniquely associated with a town which in turn has a unique mayor.

[20]I will return to the issue of why the weak article does not work here at the end of this chapter.

The analysis of larger situation uses that I will develop in the following section will indeed be explicitly designed to only work for relational nouns. However, they have to be relational nouns of a particular kind, which allow for a somewhat more indirect role of the relatum argument in connection with the situational structure of the world as well as the existence of part-whole relations therein.

## 5.4 Part-Whole Bridging Generalized

The account of larger situation uses I present in this section assimilates them to the phenomenon of part-whole bridging that we have already analyzed in chapter 4. The general idea is that just as the crisper in (58) is seen as a unique part of the refrigerator introduced in the first sentence, the mayor introduced in the nuclear scope of (231) is understood as a unique part of the town he is mayor of.

(58) **Der Kühlschrank** *war so groß, dass der Kürbis    problemlos*
The   fridge            was so big    that the pumpkin without a problem

**im**        / **#in dem**    **Gemüsefach** *untergebracht werden konnte.*
in-the$_{weak}$ / in    the$_{strong}$ crisper        stowed      be      could
'The fridge was so big that the pumpkin could easily be stowed in the crisper.'

(231) *An jedem Bahnhof,    in den    unser Zug einfuhr,    wurde mir ein Brief*
At every   train station in which our    train entered into was    I    a    letter

*vom*        / *#von dem*    *Bürgermeister überreicht.*
from-the$_{weak}$ / from   the$_{strong}$ mayor         handed
'At every train station that our train entered a letter from the mayor was handed to me.'

The only difference is that in the case of (231), the part-relationship between the town and the mayor is not directly present in the sentence, but rather is mediated by another part of the town, namely the train station. The proposal developed here integrates the part-relationship of both types of cases directly into the semantics by assuming a relational meaning for the nouns standing for a part. In order to deal

with relational meanings in the semantic composition, type-shifters that reduce the arity of a relational noun are introduced. In the situation semantic framework used here, there are several possible formulations, which provides us with more than one option for computing the meaning of a sentence with a relational noun. Importantly, such type-shifters are independently needed for a compositional account of relational nouns. The final implementation of one of these type-shifters is formulated in general enough terms to cover both part-whole bridging and larger situation uses. Since it ties the relevant effect directly to the relational nature of the relevant nouns, the dependence of the covarying interpretations on the type of noun follows. Furthermore, it only will be available for certain types of relational nouns, as it directly encodes a part-whole relationship, which not all relational nouns are compatible with.

### 5.4.1 Part-Whole Bridging Reconsidered

Let me begin by reconsidering the analysis of part-whole bridging in cases like (58) (*the fridge - the crisper*). Once a more refined analysis of these cases is in place, the extension to larger situation uses will only require a small additional step to provide a more general reformulation of the type-shifter central to the account.

In chapter 4, we considered the sentence in (58) in the context of a QUD (*What was the kitchen like?*) and concluded that once it is established that there is a unique refrigerator in the topic situation derived from this QUD, using $the_{weak}$ *crisper* to pick out the unique crisper that can standardly be assumed to come with a refrigerator is completely straightforward. While on this analysis, the fact that $the_{weak}$ *crisper* can be used here depends on the general world knowledge that refrigerators typically have one (and only one) crisper, the part-whole relationship between the two is not directly encoded in the semantics. However, I will now present a number of examples that provide evidence that part-whole relations should be part of the truth-conditional content.

The first example is one that is presented by Hawkins (1978). His discussion, as well as his conclusions, are similar enough to what I will develop here that I will quote at some length:[21]

> [...] [S]ome uses of the definite article actually exhibit a sensitivity to the type of situation within which the referent exists. Imagine that the hearer was being introduced to a set of objects with which he had no prior acquaintance, for example, the set of objects which is typically found [...] in a space rocket. The speaker will introduce these objects in syntactic frames like *this is...*, *here is ...* [...], followed by an NP. But is this NP to be definite or indefinite? There are, in fact, conflicting criteria in this case. On the one hand the hearer is being introduced to an object he has never heard of before, for example, a *goosh-injecting tyroid*. On the other hand the object is standing right before his eyes and is, let us say, unique, and this normally guarantees a definite article [...] [I]n such a situation both 3.26 and 3.27 would be possible:
>
> 3.26   That is *the goosh-injecting tyroid.*
> 3.27   That is *a goosh-injecting tyroid.*
>
> But imagine that we were introduced to this new object under different circumstances. I am in the garage of a neighbor of mine, an ex-employee of NASA recently made redundant, helping him mend his car. While searching through his tool-box I come across a strange object. 'What's that?' I ask, pointing to the object. He replies with 3.27. However, he cannot reply with 3.26 under these circumstances [...]
> But what is the difference between these two situations? In both the object is standing right before the eyes of the speaker and hearer. And in both the hearer has no prior knowledge of this particular object, of others like it, and of its name. The only difference is that in the first case the unknown object is presented within the space rocket, whereas in the second case it is presented in isolation [...]
>
> (Hawkins 1978, pp. 104-105)

In terms of our discussion, we can paraphrase Hawkins' insight as saying that in the first scenario, it is common ground that the goosh-injecting tyroid is a unique part

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[21]While I do not discuss Hawkins's (1978) own 'Location theory' of definite descriptions, I should note that he takes 'this type of example [to be] very suggestive for an overall theory of the definite article and that it fits well with the theory I am about to develop' (Hawkins 1978, p. 106). It is also fair to say that at least certain aspects of his Location theory are quite similar in spirit to (and have played an inspiring role for) the situation semantic theory I develop here.

of the space rocket, whereas in the second scenario, it is not, because it is presented as an object of its own that is not part of anything else (at least as far as mutually shared beliefs by speaker and hearer are concerned).[22] This is a first indication, then, that something more is involved in part-whole bridging cases than mere situational uniqueness.

Another interesting set of examples comes from scenarios discussed by Paraboni, Masthoff and van Deemter (2006), involving hierarchically structured domains (the authors discuss reference resolution from a computational angle).

(248)

```
                        University of Aberdeen
              Meston building                    Taylor building
        North Wing   South Wing*     North Wing   West Wing   South Wing
            |                            |
        auditorium                    library
```
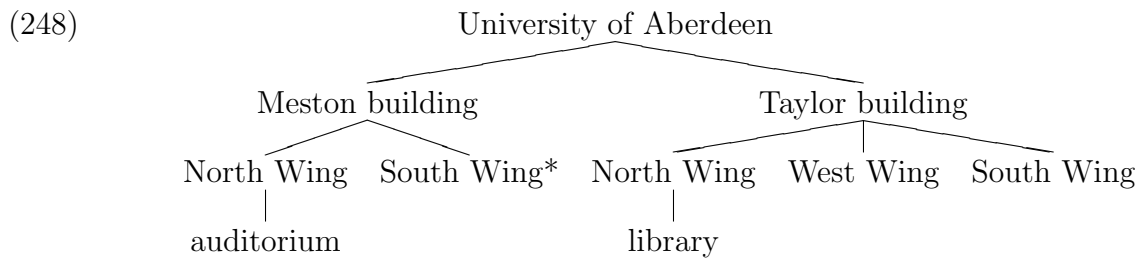
(249)   the West Wing

(van Deemter 2006)

They note that uttering a definite like the one in (249) in the South Wing of the Meston building (marked with an asterisk) is awkward, because 'intuitively speaking, the expression creates an expectation that the referent may be found nearby, [. . . ] whereas, in fact, a match can only be found in another building' (Paraboni et al. 2006). A wing is primarily seen as part of a building, and unless we are already talking about Taylor building or have some other contextual support that provides a contextually salient situation containing it, the location that the conversation is taking place in will provide the most salient 'building situation' as a whole, namely Meston building:

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[22]The fact that it has to be a unique part can clearly be seen in from the infelicity of examples like the following (uttered in Hawkins' first scenario):

(1)   (i) That is the screw.

It is rather unlikely that the type of machine we are talking about has only one screw, and to the extent that this is not so, the sentence is odd in the given context.

what seems to go wrong here is that we are very much tempted to understand (249) as picking out a wing of Meston, rather than Taylor, and since there is no west wing in Meston, it would be strange to use this phrase in this context. Similarly, the following variation in (251), where an extra library is added, is odd, because Meston DOES have a north wing, but no library in it:

(250)

```
                          University of Aberdeen
                 Meston building              Taylor building
         North Wing   South Wing*    North Wing   West Wing   South Wing
             |                            |                       |
         auditorium                    library                 library
```
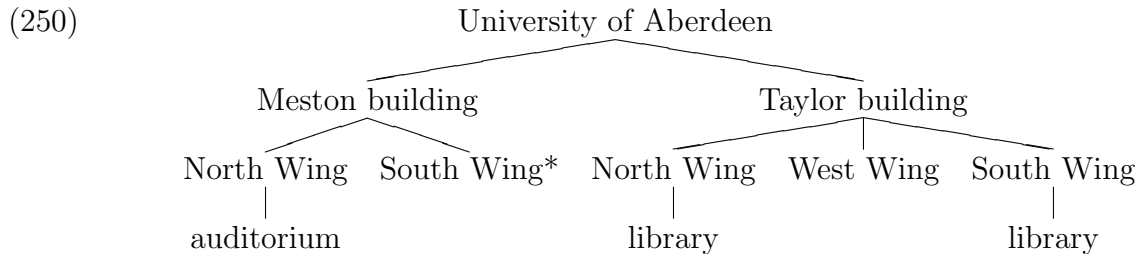
(251)   the library in the North Wing

(van Deemter 2006)

These examples again suggest that in interpreting definites of this type, we tend to understand them to be part of something else: (lacking contextual evidence to the contrary,) *the West/North Wing* is understood as part of the building that the discourse takes place in, not the building next door.[23]

To these examples, I would like to add one that, once again, involves a covarying interpretation of a definite (in a modal context), which enables us to show that there are truth-conditional effects of the part-whole relation. Let's assume that the following statement represents a rule that is part of state traffic law:

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[23]Yet another example that might fit in here is one reported by Hintikka and Kulas (1985):

(i)   You want to see Mr. Lowell? Well, today the president is in Washington, conferring with Mr. Roosevelt.
      (Reputedly said by a Harvard secretary in the early thirties to a visitor who wanted to see Abbott Lawrence Lowell.)                    (Hintikka and Kulas 1985, ex. (87))

*The president* here is clearly understood as the president of the minimal supersituation containing an entity that has a president, namely Harvard, rather than the common default 'President of the U.S.'. The additional complication in this example, however, is that Mr. Lowell had already been mentioned before, and it is not entirely clear whether the relevant situation already contains him or not.

(252)   *Wenn ein Auto in diesem Staat registriert ist, muss es eine Hupe*
        When a    car  in this    state registered is   must it a    horn

        *am           Lenkrad        haben.*
        on-the$_{weak}$  steering wheel have

        'If a car is registered in this state, it must have a horn on the steering wheel.'

Now consider a particular car that has been altered substantially to suit the owner's eccentric preferences. In place of a steering wheel, it has a joy-stick like contraption that allows the driver to control the speed and direction of the car with one hand. It does not, however, include a horn. In case this contraption should ever break, the owner removed the steering wheel from another car and keeps it in the trunk as a replacement. This steering wheel indeed has a horn. Now, the question is whether the car in question violates the rule stated above. Intuitively (and without going into any serious legal reasoning), I think it is clear that the rule is violated, for the following reason: the use of *the steering wheel* in its formulation can only be understood as the steering wheel that is (a unique) part of the previously mentioned car, and which, moreover, is used in the way this type of part is standardly used. Just having a steering wheel lying in the trunk does not suffice, as it doesn't count as the unique part of a car that a steering wheel normally is.

It seems desirable, then, to explicitly encode the part-relation that is understood as part of the meaning of these sentences in our semantics. Nouns that are understood as parts in this way are generally relational (cf. English *the steering wheel of the car, the West Wing of Meston, the goosh-injecting tyroid of the space rocket*; see Barker 1995, Barker and Dowty 1993).

(253)   $[\![\textit{steering wheel}]\!] = \lambda y.\lambda x.\lambda s.$steering-wheel$(x)(s)$ & part-of$(x)(y)(s)$

I encode the 'part-hood' of a part-denoting noun like *steering wheel* as a separate property ('part-of$(x)(y)(s)$', to be read as 'x is a part of y in s'), rather than writing steering-wheel$(x)(y)(s)$), to make this aspect of the meaning of such nouns

completely explicit in the notation. I leave it open here whether the part-relation between individuals 'part-of' is to be identified with the relation $\leq$ in our situation semantics. I will assume, however, that the former entails the latter, i.e., that the following holds:

(254)    $\forall x \forall y \forall s \; [\text{part-of}(x)(y)(s) \rightarrow \forall s'[s' \leq s \; \& \; y \leq s' \rightarrow x \leq s']]$

Determining what it takes to be a part of something else in the relevant sense is a difficult (and ultimately philosophical) question, and I will not attempt to spell this out in any detail here. One relevant and intuitively plausible aspect of part-hood is that it is not necessarily a permanent property of an object to be part of something else (though this may be the case for certain parts that are in some sense essential).[24] I will appeal to our intuitive understanding of whether the discourse participants in a given scenario would see (or be able to see) something as part of something else or not. What matters for our purposes is whether it is common ground whether an individual is part of another one. For example, in Hawkins' example above, the second scenario, where the goosh-injecting tyroid is found in a tool box as an object of its own, provides no clear evidence for the hearer to see it as a part of something else, even if it used to be part of a space rocket. But in the first scenario, it is clearly a physical part of a larger machine and the hearer has no difficulty in seeing it as such in the given situation.

### 5.4.2   Type-Shifters for Relational Nouns

One general question that any compositional semantic account of relational nouns has to address is what happens to the relatum argument when the noun combines with another expression, e.g., a determiner (or an adjective, via Predicate Modification, for that matter), that is normally assumed to combine with a property, rather

---

[24]But this is a complicated matter. Bach (1986) considers the sentence *We found part of a Roman aqueduct*, which does not require the aqueduct to still exist (nor to have ever existed!).

than a relation. One common tool for dealing with such problems is to introduce a type-shifter (in the spirit of Partee (1986)), which reduces the arity of the noun by existentially quantifying over its first argument. In a situation semantics, there are several ways of formulating such type-shifters.

(255) Some Type-shifters for relational nouns in a situation semantics[25]

    a. $[\![\Pi]\!] = \lambda R.\lambda x.\lambda s.\exists y.\ [R(y)(x)(s)]\ \&\ x \leq s\ \&\ y \leq s]$

    b. $[\![\Pi_w]\!] = \lambda R.\lambda x.\lambda s.\exists y\ [R(y)(x)(w_s)\ \&\ x \leq s]$

$\Pi$ in (255a), for example, requires the relation to hold in $s$ and both of the arguments of the relation to be part of $s$; $\Pi_w$ in (255b), on the other, requires the relation to hold in the world of $s$ and only the 'external' argument to be part of $s$. For cases of part-whole bridging, the first option yields the desired result:

(256) $[\![\Pi(steering\ wheel)]\!] =$

    $\lambda x.\lambda s.\exists y.\ [\text{steering-wheel}(x)(s)\ \&\ \text{part-of}(x)(y)(s)\ \&\ y \leq s]$

The full weak-article definite then is analyzed as follows:

(257) $[\![[[the_{weak}\ s]\Pi(steering\ wheel)]]\!]^g =$

    $\iota x.\exists y.\ [\text{steering-wheel}(x)(s)\ \&\ \text{part-of}(x)(y)(s)\ \&\ y \leq s]$

This will pick out the unique individual that is a steering wheel in $s$ and which is part of something else in $s$, where $s$ is the situation introduced by the situation pronoun on the weak article. This interpretation is exactly what we want for cases of part-whole bridging, as the whole is part of the relevant situation in them. (A use for the type-shifter in (255b) will be seen towards the end of the chapter.)

The other examples also are nicely captured by having the type-shifter $\Pi$ present. A DP like *the West Wing* is standardly understood to denote a part of a building.

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[25]As Chris Potts (p.c.) has pointed out to me, we may ultimately want to distinguish the status of the part-condition(s) from the status of $R$.

What is causing difficulty in the scenarios cited above is that the obvious choice of building for the hearer does not render a felicitous interpretation, as the building that the dialog is taking place in does not have a West Wing. But without any prior context providing evidence to the contrary, the location that the discourse takes place in seems to provide what is at least a strong default for the choice of the situation relative to which the definite is interpreted. If the other building (Taylor) that does have a West Wing had been explicitly mentioned before, or if the QUD had made it part of the topic situation, these difficulties would disappear.

Finally, the case of the steering wheel that our extravagant car-owner keeps in the trunk raises more complex issues about what it takes to be a part of something else. Is the extra steering-wheel in the trunk a part of the car (in the same way a spare tire might be)? It doesn't seem to be, or at least not in the relevant sense, given our intuition that it does not suffice to satisfy the rule about cars having to have a certain type of steering wheel. This could be due to a notion of 'part-of' that is stronger than $\leq$, i.e., that imposes additional requirements. Alternatively, it might be ultimately more appropriate to formulate the denotation of a part-denoting relational noun such as *steering wheel* slightly differently and make it part of the property of being a steering wheel of a car x that the relevant object plays a certain role in that car, e.g., that it actually serves the function of a steering wheel (we could then just write steering-wheel$(x)(y)(s)$ in our formula without spelling out directly what it takes for this relation to hold). Whichever way we choose to resolve this issue, the important point for the present discussion is that the type-shifter $\Pi$ will work in exactly the right way with an appropriate relational denotation. The (slightly simplified) meaning that we will arrive at for (252) will be the following:

(252)   *Wenn ein Auto in diesem Staat registriert ist, muss es eine Hupe*
        When a    car   in this    state  registered  is   must  it  a    horn

        *am          Lenkrad        haben.*
        on-the$_{weak}$  steering wheel  have
        'If a car is registered in this state, it must have a horn on the steering wheel.'

(258)   $\lambda s. \forall s' \ [Acc(s)(s') \ \rightarrow \forall s_1[[s_1 \leq s' \ \&$

$$EX(\lambda s_2 \exists x[\text{car-registered-in-this-state}(x)(s_2)])(s_1)] \rightarrow$$

$$\exists s_3[s_1 \lesssim s_3 \leq s' \ \&$$

have-a-horn($\iota y. \exists z[\text{steering-wheel}(y)(s_3) \ \& \ \text{part-of}(y)(z)(s_3) \ \& \ z \leq s_3])(s_3)]]]$

Let's take count of what we have achieved so far. We started from the observation that part-denoting nouns have a relational meaning. There is an independent need to deal with relational meanings in a compositional semantics, and type-shifters are a standard tool for serving this type of need. In a situation semantics, there are several possible versions of type-shifters that we can formulate. One of the proposed versions provided a more in-depth account for cases of part-whole bridging than we had previously considered. We thus have an analysis of covarying interpretations involving part-whole bridging that is entirely based on independently needed mechanisms (distinct from matching functions).

Furthermore, the same type-shifter will also allow for covarying interpretations of the domains of quantificational determiners that have a relational noun (of the relevant type) as their complement.

(259)   a.  Most states give every retired congressman a pension.

        b.  Most companies give every manager a bonus.

Assuming that congressmen are part of the state that they represent and that managers are part of the company they work for, these cases are predicted to have covarying interpretations assuming the relevant nouns have been type-shifted by $\Pi$. We thus can account for these cases without invoking contextually supplied matching

functions. This is appealing, as they do not seem to depend on the context, just like the cases of part-whole bridging, as well as the larger situation uses, which I turn to next.

### 5.4.3    Larger Situation Uses and Part-Structure

With a refined analysis of part-whole bridging in place, we can now return to the larger situation uses, such as (231), repeated below, that we set out to capture.

(231)  *An jedem Bahnhof,    in den    unser Zug einfuhr,    wurde mir ein Brief*
       At  every  train station in  which our     train entered into was    I    a    letter

       *vom            / #von dem       Bürgermeister überreicht.*
       from-the$_{weak}$  / from   the$_{strong}$ mayor           handed

       'At every train station that our train entered a letter from the mayor was handed to me.'

Those, too, involve relational nouns, and we hence face the same general problem in composing their meanings with other expressions that typically combine with properties. A type-shifter therefore seems to be needed for these as well. But Π, in the version proposed above, will not be appropriate as it requires the value of the relatum argument (e.g., the town in (231)) to be part of the situation with respect to which the noun phrase as a whole ends up being evaluated. But the problem with larger situation uses was exactly that we could not assume the relatum argument to be present in the situation with respect to which the definite as a whole would have to be interpreted.

However, we can capture larger situation cases if we restate the requirement introduced by the type-shifter in a slightly more general fashion, which makes the relationship between the situation of evaluation and the whole that the part is a part of more indirect.

(260)   $[\![\Pi]\!] = \lambda R.\lambda x.\lambda s.\exists y.\exists s'\ [R(y)(x)(y)\ \&\ s' \leq s\ \&\ s' \leq y]$

Following Kratzer (Ms., 2008), this formulation assumes that there is no ontological difference between situations and individuals, an assumption that is attractive given the ontological symmetry between them (documented by, for example, Schlenker (2005)). While this makes the formulation of $\Pi$ simpler, it is not a necessary assumption.[26]

In this new version, $\Pi$ no longer requires the relatum argument to be part of $s$. All it requires is that there is a part of $s$ that is in turn part of $y$ (where 'part of' stands for the relation $\leq$). It suffices, one might say, for $x$ to have a 'co-part' in $s$, i.e. something that is part of the same whole $y$ as $x$. This whole itself may or may not be part of $s$. The analysis of (231) in terms of this new type-shifter is provided in (261).[27]

(231)  *An jedem Bahnhof,    in den    unser Zug  einfuhr,    wurde mir ein Brief*
At  every  train station in  which our    train entered into  was    I    a    letter

*vom          / #von dem      Bürgermeister überreicht.*
from-the$_{weak}$ / from the$_{strong}$ mayor          handed

'At every train station that our train entered a letter from the mayor was handed to me.'

(261)  $\llbracket(231)\rrbracket = \lambda s \forall x \forall s_1 [[s_1 \leq s \,\&$

$EX(\lambda s'.\text{trainstation}(x)(s') \,\&\, \text{enter}(\text{OURTRAIN})(x)(s'))(s_1)] \rightarrow$

$\exists s_2 [s_1 \lesssim s_2 \leq s \,\&\, \exists y[\text{letter}(y)(s_2) \,\&$

$\text{from}(y)(\iota z.\exists u.\exists s''[\text{mayor}(z)(u)(u) \,\&\, s'' \leq s_2 \,\&\, s'' \leq u])(s_2) \,\&$

$\text{was-handed}(I)(y)(s_2)]]]$

---

[26]To formulate it without the assumption, we would have to introduce existential quantification over yet another situation variable and impose an extra condition on this variable to ensure that it only contains $y$ (as well as its parts, of course):

(i)  $\llbracket\Pi\rrbracket = \lambda R.\lambda x.\lambda s.\exists y.\exists s'\exists s'' \, [R(y)(x)(s'')] \,\&\, EX(\lambda s'''.R(y)(x)(s'''))(s'') \,\&\, s' \leq s \,\&\, s' \leq s''$

[27]I omit the matching function here since it does not play a role in bringing about the interpretation we are interested in.

This adequately captures our understanding of (231), with a covarying interpretation of $the_{weak}$ *mayor*, as it states that at each train station I received a letter from the unique mayor of $u$, where $u$ is related to the situation quantified over in the nuclear scope ($s_2$) in that a part of $s_2$ is part of $u$. Assuming (uncontroversially, it would seem) that the train station is part of the town it is in and that the mayor of a town is part of a town (since we are evaluating $\text{mayor}(z)(u)$ in situation $u$, which consists of the town), we then pick out the mayor of the town that the respective train station is in.

Note that the new formulation of $\Pi$ can capture cases of part-whole bridging, such as (58), as well, since the whole ($y$, the fridge) is already part of the situation of evaluation ($s$) in them.

(58)  ***Der Kühlschrank*** *war so groß, dass der Kürbis  problemlos*
      The  fridge              was so big   that the pumpkin without a problem

      ***im***     */ #in dem    **Gemüsefach** untergebracht werden konnte.*
      in-the$_{weak}$ / in   the$_{strong}$ crisper          stowed        be        could
      'The fridge was so big that the pumpkin could easily be stowed in the crisper.'

Since the reflexive relation $\leq$ is used in the new formulation of $\Pi$ (rather than a proper part relation), meaning that everything is a part of itself (e.g., $y \leq y$), the 'co-part' of $x$ that is present in $s$ can be the whole $y$ itself. Figure 5.1 provides a graphic illustration of the different options.

The left side illustrates a larger situation use. The oval, standing for the situation $s$ in which the definite as a whole is evaluated, contains the train station, but neither the mayor (represented by the diamond) nor the entire town (represented by the triangle). However, it overlaps with the town, as the train station is part of the town. The mayor, in turn, is part of the town, too. The interpretation assigned to the definite ($\iota z.\exists u.\exists s''[\text{mayor}(z)(u)(u) \ \& \ s'' \leq s_2 \ \& \ s'' \leq u]$) therefore is able to pick out the mayor of the town that the train station is part of. The part-whole bridging case, represented on the right, is analyzed in completely parallel terms, the only difference
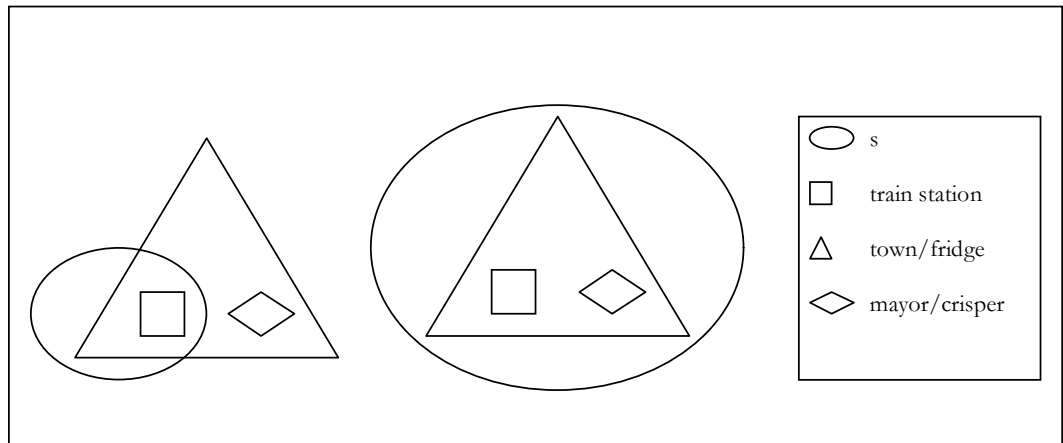
**Figure 5.1.** Larger Situation and Part-Whole Configurations matching Π

being that the whole (the fridge, represented by the triangle) is already part of the situation of evaluation and serves (or at least can serve) as the 'co-part' of the crisper. We thus have a unified analysis of part-whole bridging and larger situation uses that is based on a specific version of an independently needed type-shifter.

An attractive feature of this analysis, which is worth highlighting given the discussion in section 5.3.3, is that it lets us make use of the relation denoted by the noun inside of the definite in an indirect way. If we tried to account for these cases with matching functions, we saw that there would be difficulties in specifying how exactly the lexical content of the noun (or multiple such nouns, in the particularly problematic case of (242)) could affect the matching function. Similarly, $C$-variable accounts face the problem of letting this lexical content affect the value assigned to the $C$-variable in such a way that it introduces a related, but non-identical relation. In the account developed here, we are able to make use of the very relation denoted by the noun without having to directly quantify over the relatum argument, because

Π provides us with the necessary flexibility in terms of how the relatum argument (i.e., the town) and the situations quantified over are related.

Before moving on to discussing some further properties of larger situation uses and the proposed analysis, I'd like to point out a class of phenomena that seem to involve similar mechanisms involving situational relationships. Mitchell (1986) and, following him, Partee (1989) discuss various kinds of expressions that could be seen as involving binding of some sort of implicit variable. (262) represents an especially intriguing and relevant case.

(262)   Everyone went to a local bar.

(modeled after an example from Mitchell 1986)

(262) has a covarying interpretation, according to which everyone went to a bar that is close to where they live - which could be different bars for different people. The effect here seems highly similar to the one we have discussed for $the_{weak}$ mayor in (231); in fact, one could paraphrase the interpretation of (231) that we have been interested in as *At every train station, I received a letter from the <u>local</u> mayor*. While I cannot go into a detailed discussion of the meaning of expressions like *local* (and related ones, e.g., *regional*), it seems promising to consider an analysis that is roughly parallel to the one proposed here:[28]  a bar that is local as far as an individual $x$ is concerned could be characterized as a bar that is part of the neighborhood (or whatever the relevant 'organizational' level of an area is) that $x$ is part of - and thus would match the configuration on the right side of figure 5.1. I leave an exploration of how such an idea could be implemented in the formulation of the lexical entry for adjectives like *local* for another occasion.

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[28]It would also be similar, at least in its general spirit, to the situation semantic analysis proposed by Mitchell (1986).

### 5.4.4 More Properties of Larger Situation Uses

Other cases of larger situation uses that we have seen can be analyzed with the more general formulation of Π in (260) as well. Consider (240), for example.

(240)  *Jeder Professor (an der UMass) bekam   einen Brief vom          Dekan.*
       every professor  (at  the  UMass)  received  a      letter from-the$_{weak}$  dean
       'Every professor (at UMass received a letter from the dean.'

On the covarying interpretation, this sentence is understood to say that every professor received a letter from the dean of the school that their department belongs to. Assuming that professors are part of the school that their department belongs to, and that a dean of a school is part of it, the analysis is completely parallel to that of (231).

The following case, while ultimately also parallel to the previous examples, illustrates the importance of one of the features of Π that we have not highlighted yet.

(263)  *Jeder Bauer, der einen Esel    auf dem Markt gekauft hat, hatte vorher*
       every farmer that a      donkey on  the   market bought has  had    previously

       *im           Stall   aufgeräumt.*
       in-the$_{weak}$   stable cleaned up
       'Ever farmer that bought a donkey on the market had cleaned up the stable before.'

As we are quantifying over situations containing donkey-buying events that are located at the market, it is crucial for Π to only require there to be a part of $s$ that is part of a larger whole relative to which the relation introduced by the noun can be evaluated. *The$_{weak}$ stable* is understood here as part of a farm, which in turn is related to the donkey-buying situations quantified over in the restrictor in that those contain another part of the farm, namely the farmer. If we required the entire situation $s$ quantified over to be part of the relevant whole, then this case should not

be felicitous (or have a peculiar interpretation), since it would require the market to be part of all the relevant farmers' farms.[29]

Another class of cases that can be seen as larger situation uses in German, and which therefore can be captured with the type-shifter Π, involves family relations. While many languages, including English, require these (and, more generally, relations involving some notion of inalienable possession), to be expressed by possessive descriptions, German also allows the weak article to be used.[30] (264) provides an example where this is the case.

(264)   a.   Context: Every child in kindergarten brought photos of family members to school with them and was supposed to try to draw a copy of one of them.

   b.   *Jeder Junge entschied sich   für das Foto   vom     Vater.*
        every boy   decided   REFL for the photo of-the$_{weak}$ father
        'Every boy chose the picture of the father.'

In order for these cases to fit the mold of larger situation uses, however, we cannot use the relational entry for *father* that perhaps first comes to mind, namely one introducing the relation holding between a man and his children. If we applied the type-shifter Π to such a meaning, then we would require the father to be a part of the child, since the relation introduced by the noun is evaluated relative to the situation consisting of the relatum argument. However, there arguably is another relational sense of nouns denoting family relations, such as *father*, which encodes their unique role in the family. Evidence for the existence of such a relational notion comes from

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[29]This issue would also become relevant in the previous examples if the definite had to be interpreted relative to the nuclear scope situation, but not if it can be interpreted relative to the restrictor situation.

[30]The relationship between definite and possessive descriptions is a complex issue with considerable variation between languages, and I don't have the space to explore it more fully here. For the moment, the main point for our discussion is that the weak article can be used in German in the cases considered here.

the fact that we can say things like *the father of the family*. Assuming that *of*-possessives are a reliable indicator of the relationality of the head noun (Barker 1995), *father* seems to have a relational meaning based on the part-relation. If this relational notion of *father* is used, the application of the type-shifter Π will again be completely parallel to the previous examples, as the child in the situation quantified over in the restrictor is a part of a family, and the definite in the restrictor, type-shifted by Π, can therefore be interpreted as the unique father of the family that the child is part of. Note that this perspective also allows us to capture cases that do not directly involve quantification over the values of the relatum argument (the children, in (264)), but do introduce them as parts of the situations quantified over:[31]

(265)  *In jedem Haushalt, in dem   die Kinder  das Abendessen zubereiten, wird der*
       in  every  household  in which the children the  dinner         prepare     is    the

       *Abwasch     vom          Vater erledigt.*
       dish-washing by-the$_{weak}$  father taken care of
       'In every household in which the kids prepare dinner, the dishes are taken

       care of by the father.'

This example thus provides yet another illustration of how the present account allows us to use the relation denoted by the noun directly without requiring the relatum argument to be quantificationally bound in order to derive a covarying interpretation.

Another issue this example raises concerns the effect of the uniqueness requirement. In (265), the father in the nuclear scope is certainly understood to be the father of all of the children in the restrictor situation. If we were quantifying over situations containing children from different families (e.g., all the children in a class), the definite *the$_{weak}$ father* would not be felicitous. In certain other examples, however, the issue of what the relevant part is turns out to be slightly more complicated. Consider

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[31]The fact that a definite is used for *the children* in the restrictor as well suggests that Π can also be applied to plural nouns, but I will not attempt to provide a full analysis of this occurrence of a plural definite here.

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the contrast between (241), repeated from above, and (266). While in the former, a covarying interpretation of $the_{weak}$ *head of state* is easily available, the latter seems to be most naturally understood as making a claim about the president of the US.

(241)  *Jedes Mal, wenn ein Botschafter **seine Eltern zu Hause besuchte**,*
each  time  when  an  ambassador  his    parents  at  home    visited

*bekam er einen Anruf vom        Staatsoberhaupt.*
got    he  a      call    from-the$_{weak}$ head of state
'Each time an ambassador **visited his parents at home**, he got a call from the head of state.'

**$the_{weak}$ head of state $\cong$ the head of state of the ambassador's home country**

(266)  *Jedes Mal, wenn ein Botschafter **in    Washington zu Besuch war**,*
each  time  when  an  ambassador  in-the Washington    to  visit    was

*bekam er einen Anruf vom        Staatsoberhaupt.*
got    he  a      call    from-the$_{weak}$ head of state
'Each time an ambassador **visited Washington**, he got a call from the head of state.'

**$the_{weak}$ head of state $\cong$ the American president**

If we only consider the location that the restrictor situation makes a claim about in each case, the contrast in the available readings is entirely expected. When an ambassador visits his parents at home, the corresponding situation will be a part of the country he is from, which, in turn, has a unique head of state as one of its parts. But if the restrictor situation is located in Washington, as in (266), then all the situations quantified over will be part of the US, and $the_{weak}$ *head of state* thus is expected to pick out the American president in each case.

However, ambassadors, who serve their country in an important role, are presumably part of their country as well, just as heads of state are. But if this is so, then a covarying reading should be available for (266) as well, since the situations quanti-

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fied over contain ambassadors from (potentially) different countries. At this point, it becomes relevant what exactly the uniqueness requirement of a definite description containing a relational noun that has been type-shifted via $\Pi$ is. The denotation of the type-shifted definite in the present case will be the following (where $s$ is the situation relative to which the definite is interpreted):

(267)  $\iota x.\exists y.\exists s'.[\text{head-of-state}(x)(y)(y)\ \&\ s' \leq s\ \&\ s' \leq y]$

In order for the uniqueness presupposition of the definite to be met, there can only be one whole $y$ that has a head of state and that has parts that are part of $s$. Under the assumption that ambassadors are parts of the state they represent, however, there are parts of multiple such wholes (i.e., states) in the restrictor situation of (266), namely an ambassador and the parts of the situation that are part of the US. In such circumstances, our analysis would lead us to expect that the definite is infelicitous when it is interpreted relative to the situations quantified over in the nuclear scope (or in the restrictor). In fact, however, the sentence is perfectly felicitous, it just does not have an interpretation where the head of state is understood to be the head of state of the ambassador's country.

I see two possibilities for accommodating these data in our analysis. First, we could try to provide some general account of part-whole structure that somehow implies a preference for seeing territorial entities, as opposed to individuals, as parts of a state, which would account for the effect of the location of the restrictor situation in the contrast between (241) and (266) (perhaps it could be argued that they make for more prototypical parts in some sense). Alternatively, we could argue that in (266), the definite is in fact not interpreted relative to the nuclear scope situation after all, precisely because the uniqueness presupposition of the definite is not satisfied on this interpretation of the situation pronoun. Since we perceive no covarying interpretation, it could simply be interpreted relative to a contextually salient situation or, if there is a suitable QUD in the context, the topic situation (note that such a situation will not

have to contain the entire US; it only has to be part of the US and contain no parts of other states). This second possibility may in fact be independently motivated, given examples such as the following.[32]

(268)   *Wenn [ein ausländischer Präsident]$_1$ [Barack Obama]$_2$ im        Weißen*
        When  a    foreign         president    Barack  Obama   in-the$_{weak}$  White

        *Haus  besucht, wird vom$_1$      /  von        dem$_2$    Präsidenten eine*
        House visits,   is   by-the$_{weak}$  by the$_{strong}$  president a              speech

        *Rede gehalten.*
        given

        'When a foreign president visits Barack Obama in the White house, the president gives a speech.'

The definite *the$_{weak}$ president* is understood as picking out the US president Barack Obama, whereas *the$_{strong}$ president* preferably picks out the visiting foreign president. The effect with the weak article seems very much parallel to what we saw in (266), and could be accounted for in parallel terms, i.e., by interpreting it relative to the topic situation or a contextually salient situation. While the issue merits further investigation, I will leave this for future work (the interpretation of the strong article in (268) will be discussed in chapter 6).

In addition to capturing all the cases where larger situation uses with relational nouns do work, we also have to make sure our account can exclude cases where weak-article definites do not render the relevant covarying reading with a relational noun. A case in point was (62), from chapter 2.

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[32]No theoretical status should be read into the indices, which are only provided to clarify the available interpretations.

(62)  *Jeder,    der  einen Roman gekauft hat, hatte schon   einmal eine*
      Everyone that a      novel    bought has  had    already once      a

      *Kurzgeschichte **#vom**     / ✓ **von dem**    **Autor** gelesen.*
      short story        by-the$_{weak}$ / by        the$_{strong}$ author  read
      'Everyone that bought a novel had already once read a short story by the
      author.'

While *author* is a relational noun, it arguably differs from the relational nouns
we have seen with larger situation uses in at least one crucial respect: unlike mayors,
deans, etc., authors are not part of their relatum argument, i.e., an author is not part
of a book he wrote, and the two aren't co-parts of something else, either. Therefore,
applying the type-shifter Π to *author* in (62) would not yield a felicitous interpreta-
tion, because the definite would pick out the unique author of book $y$ in the situation
consisting of $y$ (since Π would introduce the condition 'author$(x)(y)(y)$').[33]

This does not mean, however, that a noun like *author* can never appear with the
weak article. We just need to provide an appropriate contextual setup which ensures,

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[33]Note that, ultimately, an account along these lines needs to provide an explanation for why the
following type-shifter is not available.

(i)   $[\![\Pi_{w'}]\!] = \lambda R.\lambda x.\lambda s.\exists y\ [R(y)(x)(w_s)\ \&\ y \leq s]$

This would render the following interpretation of *the$_{weak}$  author*.

(ii)   $\iota x.\exists y.\mathrm{author}(x)(y)(w_{s_r})\ \&\ y \leq s_r$

The type-shifter would ensure that we are picking out the author of the unique individual that
has an author in the situations quantified over. One possibility for explaining the absence of the
type-shifter in (i) would be to consider a potential parallel in the verbal domain. There are numerous
verbs that do not seem to require the object to be present in the situation of evaluation, as witnessed
by the examples in (iii) and the contrast in (iv).

(iii)   a.  Mary is thinking of John.
      b.  Mary misses John.

(iv)   a.  Mary resembles her great-aunt (who passed away years ago).
      b.  # Mary's great aunt (who passed away years ago) resembles her.
                   (modeled after examples by Kratzer 1989b, p. 156)

As far as I am aware, there are no verbs that show the reverse effect, which would to a certain
extent be parallel to the absence of the type-shifter in (i) in the nominal domain.

in one way or another, that we can interpret *the<sub>weak</sub>* *author* relative to a situation that contains a unique author. An example of such a context is given in (269).

(269)   a.   **Context:** We're at an 'author's book fair', where authors promote their own books. Each author has his own book stand with his latest book on display, and stands behind the book himself.

   b.   *An jedem Buchstand, an dem   Hans den Klappentext des     Buches*
        At every   bookstand   at which Hans the blurb         the$_{GEN}$ book

        *las,   wurde er vom        Autor  in ein Gespräch    verwickelt.*
        read was     he by-the$_{weak}$  author in a    conversation drawn
        'At every bookstand at which Hans read the blurb of the book, he was drawn into a conversation by the author.'

There are two ways in which we could analyze (269). The first is to appeal to the matching function introduced by *every* to ensure that bookstands and authors are matched in the nuclear scope, as in other cases where we needed a specific contextual setup to ensure a covarying interpretation. In that case, *author* can be type-shifted by the alternative version of a situation semantic type-shifter that we considered earlier, which doesn't require the relatum argument to be part of the situation of evaluation.

(255b)   $\llbracket \Pi_w \rrbracket = \lambda R.\lambda x.\lambda s.\exists y \; [R(y)(x)(w_s) \; \& \; x \leq s]$

With this type-shifter, *the<sub>weak</sub>* *author* picks out the unique person that is part of the situation $s$ that the definite is interpreted in (which has to fit the requirements of the matching function), and which stands in the author-relation to something in the world of $s$ ($w_s$). On this interpretation, the connection between the book at the bookstand and the author is only encoded indirectly, by means of the matching function. A type-shifter along the lines of $\Pi_w$ would seem to be independently needed for cases where the noun *author* is used without making any connection to relevant

things that were authored, e.g., in cases where it combines with a quantifier, as in *Most authors looked tired yesterday.*[34]

An alternative analysis would be to argue that the context provides an understanding of authors as parts of bookstands (in analogy to *the father of the family* above), which would allow us to see it as a larger situation use that can be captured via Π. However, to the extent that we want to reserve this mechanism to relational nouns of the appropriate sort (namely ones that denote parts of their relatum argument), this possibility depends on whether *the author of the bookstand* is acceptable or not. While the status of this description is not clear, it does seem like there is a gray zone with respect to contextually supplied relations of this kind. Since we have an alternative solution, however, we don't have to be too concerned about whether this possibility exists or not.

There is one other type of example in which the noun *author* can felicitously be used with the weak article, namely when the relatum argument is made explicit, as in the following variation of (62).

(270)  *Jeder,    der  einen Roman gekauft hat, hatte schon  mal eine*
       Everyone that a     novel  bought  has  had   already once a

       *Kurzgeschichte ✓ vom     / ?von dem    Autor des   Romans gelesen.*
       short story       by-the$_{weak}$ / by   the$_{strong}$ author the$_{Gen}$ novel     read
       'Everyone that bought a novel had already once read a short story by the author of the novel.'

In this case, no type-shifting is necessary, since *author* combines with its relatum argument before combining with the weak article. As long as the *the$_{GEN}$ novel* provides the book mentioned in the relative clause as the relatum argument, the definite

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[34]In such cases, the condition $x \leq s$ will be crucial if we want to allow for any situational domain restriction.

as a whole can be interpreted relative to the world of $s$ $(w_s)$.[35] Assuming that each novel has a unique author, $the_{weak}$ *author of novel x* will always be felicitous when interpreted relative to $w_s$.

## 5.5 Summary

In this chapter, I have provided an account of larger situation uses that assimilates them to cases of part-whole bridging, which in turn received a more refined analysis. The crucial step was the introduction of a type-shifter $\Pi$ for relational nouns that reduces their arity to allow them to combine with other expressions that take a property, rather than a relation, as an argument. While $\Pi$ only works with relational nouns, it does not work with all relational nouns, as it requires the individual that the relevant definite as a whole picks out to be a part of its relatum argument. It therefore provided a general account of part-whole bridging and larger situation uses with a variety of different nouns involving institutional and family roles and relations. It correctly ruled out cases where the relevant covarying interpretations are not available with the weak article because the relational noun in question (e.g., *author*) does not exhibit the relevant part structure. It also makes correct predictions about what type of context is needed in order to salvage weak-article definites in such sentences.

This novel perspective on covarying interpretations with relational nouns provides a new understanding of how the relation denoted by the noun can directly impact the covarying interpretation of the noun phrase as a whole, without requiring the relatum argument to be directly bound. Cases of covarying interpretations in similar configurations that did not involve a relational noun (of the relevant sort) were argued

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[35]While standard German does not allow us to determine whether the relatum definite involves a weak or strong article, cursory Bavarian evidence provided by Stefan Hinterwimmer (p.c.) suggests that we are dealing with a strong article.

to be due to another mechanism, namely that of the (also independently motivated) matching functions that are standardly introduced in the nuclear scope of quantifiers like *every*. Matching functions also help us to capture the effect of the uniqueness presupposition of definites in quantificational contexts. In contrast to the mechanism based on relational nouns, matching functions generally require explicit contextual support. This difference between the two mechanisms is empirically adequate in light of the variation in contextual dependence between the relevant classes of examples.

# CHAPTER 6

# THE ANAPHORIC NATURE OF THE STRONG ARTICLE

The preceding chapters presented a detailed situation semantic account of weak-article definites. In particular, I argued that weak article definites pick out an individual that is unique relative to a certain situation. In this chapter, we turn to strong-article definites. Given the data from chapter 2, it is plausible to start this discussion by asking what the strong article can do that the weak article cannot. One central difference between the two is that only the strong article can be used anaphorically, i.e., its interpretation generally depends on that of a preceding expression.

If strong-article definites are anaphoric, the question arises of how exactly an anaphoric interpretation of a definite comes about in technical terms. The predominant family of approaches for formally implementing anaphoric dependencies is that of dynamic semantics (broadly speaking), which basically sees definites as introducing a restricted variable that has to be dynamically bound.

After reviewing the basic data and the corresponding goals for a successful analysis of the strong article, I introduce the central features of the dynamic perspective on anaphora and develop an account that builds an anaphoric link into the meaning of the strong article, namely by letting it combine with an additional index argument that introduces an individual variable. Once we consider quantificational cases, it becomes clear that this analysis requires some type of dynamic binding mechanism to allow for covarying interpretations of the index argument. A strength of this proposal is that it is appropriately restrictive when we consider cases of relational bridging with

the strong article, which I show to require a head noun that is relational (but not of the same type as the relational nouns involved in part-whole bridging and larger situation uses). This restriction cannot be captured by $C$-variable based accounts of bridging (Chierchia 1995), which appeal to the context to provide the linking relation needed for a bridging interpretation.

While strong-article definites generally require an antecedent, there are some interesting exceptions to this, which I discuss in section 6.3. The final section of this chapter (section 6.4) discusses some open issues related to the relationship between the weak and the strong article. One concerns potential factors affecting article choice in cases where both articles should in principle be available. The other consists of the intriguing contrast in the articles' ability to combine with restrictive relative clause.

## 6.1 What Can the Strong Article Do that the Weak Article Can't?

### 6.1.1 Discourse Anaphoric Uses of the Strong Article

Let us begin our discussion of the strong article by comparing it to the weak article, in particular in the cases from chapter 2 where only the former, but not the latter, is available. One particularly clear case consisted of examples where the descriptions on the indefinite antecedent and the anaphoric definite were different, and, more specifically, where the description on the definite was much more general than that on the indefinite, as in (28), or an epithet, as in (29).

(28)  *Maria hat einen Ornithologen ins    Seminar eingeladen. Ich halte*
      Maria has an     ornithologist  to-the seminar invited.     I     hold

      **#vom    / von dem    Mann** *nicht sehr viel.*
      of-the$_{weak}$ / of    the$_{strong}$ man     not    very   much

      'Maria has invited an ornithologist to the seminar. I don't think very highly of the man.'

(29)  *Hans hat schon   wieder angerufen. Ich will   #vom         / von dem Idioten*
      Hans has already again    called.        I     want #of-the$_{weak}$ / of   the$_s$  idiot

      *nichts mehr hören.*
      not      more  hear.
      'Hans has called again.  I don't want to hear anything anymore from that
      idiot.'

Intuitively, what seems to be going wrong with the weak article in these cases is that its uniqueness requirement is not guaranteed to be met. In (28), there may be many men in the seminar situation we are talking about, and in (29), it is not (or at least not necessarily) common ground that there is a unique idiot in the situation we are talking about. No parallel problem arises with the strong article - somehow it is able to convey that the individual introduced by the indefinite in the preceding sentence is the intended referent.

A similar issue arises in (25): again, the infelicity of the weak article is intuitively due to the fact that there are many books in the New York public library, and we therefore cannot pick out a unique book with *the$_{weak}$ book* when talking about a recent visit there. Even if we explicitly provide the restriction 'about topinambur', the strong article is clearly preferred, and the weak article, to the extent to which it is acceptable, would be understood to indicate that there is exactly one book about topinambur in the library.

(25)  *In der New Yorker Bibliothek gibt   es      **ein Buch** über   Topinambur.*
      In the New York    library     exists EXPL a      book   about topinambur.

      *Neulich  war ich dort  und habe **#im**      / **in dem**   **Buch** nach einer*
      Recently was I    there and have in-the$_{weak}$ / in  the$_{strong}$ book   for    an

      *Antwort auf die Frage    gesucht, ob       man Topinambur grillen kann.*
      answer   to  the question searched whether one   topinambur   grill    can.
      'In the New York public library, there is a book about topinambur. Recently,
      I was there and looked in the book for an answer to the question of whether
      one can grill topinambur.'

The strong article, on the other hand, is able to convey the crucial additional piece of information that we are talking about the book mentioned in the first sentence, and does not give rise to a uniqueness interpretation.

In (26), there is again a problem with uniqueness, though it is brought about in a slightly different way. Rather than having a simple, singular indefinite antecedent, we are dealing with a partitive form that indicates the presence of several rooms. Thus, the weak article seems to be infelicitous because there are numerous rooms in the situation we are talking about.

(26)   *Bei    der Gutshausbesichtigung hat mich **eines der    Zimmer***
       During the mansion tour             has me   one    the$_{GEN}$ rooms

       *besonders beeindruckt. Angeblich  hat Goethe im        Jahr 1810 eine*
       especially impressed    Supposedly has Goethe in-the$_{weak}$ year 1810 a

       *Nacht **#im     / in dem    Zimmer verbracht.***
       night in-the$_{weak}$ / in the$_{strong}$ room    spent
       'One of the rooms especially impressed me during the mansion tour. Suppos-edly Goethe spent a night in the room in 1810.'

Once more, the strong article is somehow able to ensure an interpretation in which the *the$_{strong}$ room* picks out the room that was said to have impressed me in the first sentence.

**6.1.2   Covarying Interpretations of the Strong Article**

We also saw in chapter 2 that similar effects can be observed in quantificational sentences where the relevant definites receive a covarying interpretation.

(31)  *Jedes Mal, wenn ein Ornithologe im        Seminar einen Vortrag hält,*
      Every time when an  ornithologist in-the$_{weak}$ seminar a      lecture holds

      *wollen die Studenten #vom        / von dem      Mann wissen, ob*
      want    the students   of-the$_{weak}$ / of   the$_{strong}$ man   know    whether

      *Vogelgesang grammatischen Regeln folgt.*
      bird singing grammatical     rules   follows
      'Every time an ornithologist gives a lecture in the seminar, the students want

      to know whether bird songs follow grammatical rules.'

(32)  *In jeder Bibliothek, die  ein Buch über  Topinambur hat, sehe ich*
      In every library      that a   book about topinambur  has  look I

      *#im        / in dem      Buch nach, ob      man Topinambur grillen kann.*
      in-the$_{weak}$ / in  the$_{strong}$ book PART whether one  topinambur   grill     can
      'In every library that has a book about topinambur I check in the book

      whether one can grill topinambur.'

(33)  *Jedes Mal, wenn mir bei     einer Gutshausbesichtigung eines der*
      Every time when me  during a    mansion tour            one   the$_{GEN}$

      *Zimmer besonders gefällt, finde ich später heraus, dass eine berühmte*
      rooms   especially like     find I   later   out     that  a   famous

      *Person eine Nacht #im        / in dem      Zimmer verbracht hat.*
      person a    night  in-the$_{weak}$ / in  the$_{strong}$ room     spent      has
      'Every time when I particularly like one of the rooms during a mansion tour,

      I later find out that a famous person spent a night in the room.'

The facts are parallel to what we saw above in the discourse anaphoric cases insofar as the situations quantified over in the restrictor clause can be presumed to contain more than one individual that has the property expressed by the description within the definite in the nuclear scope. Thus, when the weak-article definite is evaluated with respect to the situations quantified over (as is necessary to derive a covarying interpretation), its uniqueness requirement is not met, which explains the unavailability of the weak article on the account laid out in the previous chapters.

The strong article seems to be able to circumvent this problem, just as in the previous, non-quantificational cases.

Yet another variant of cases where the restrictor of a quantificational sentence introduces more than one individual with the relevant property are the so-called sage-plant and bishop sentences in (271) and (272). These have been discussed at length in the situation semantic literature on donkey sentences, as they pose a difficult challenge to D-Type approaches, which analyze pronouns as definite descriptions (Heim 1982, Heim 1990, Elbourne 2005).

(271)   a.   Every woman that bought a sage-plant here also bought eight others along
             with it.

                                                                        (Heim 1982)

        b.   If a donkey is lonely it talks to another donkey.

                                                                      (Elbourne 2005)

(272)   When a bishop meets another bishop, he blesses him. (Heim 1990, Elbourne
        2005, attributed to Hans Kamp)

The problem that arises with these types of sentences for D-type analyses is that the uniqueness requirement is not met, which means they are incorrectly predicted to be judged anomalous. Indeed, these examples were originally brought forth to make the argument that anaphoric dependencies cannot be adequately captured by uniqueness-based accounts. Even situation semantic D-Type accounts, which generally ensure uniqueness by limiting it to the situations quantified over, have to be augmented for analyzing these examples (e.g. by assuming additional domain restriction that makes use of the situation structure of the restrictor clause (Elbourne 2005)), because uniqueness does not hold in the relevant situations.[1]

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[1]This is especially true for bishop sentences. Sage-plant examples can be accounted for in terms of situations alone as long as we allow the situation pronoun of the definite to be evaluated relative

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The literature on donkey sentences is primarily concerned with pronominal versions, and I am not aware of any detailed discussion of the status of bishop sentences with full definite descriptions in English. From the perspective of D-Type accounts, they should behave in exactly the same way as pronouns, but they seem to be less acceptable, according to my intuitions.[2]

   (i)   If a bishop meets a bishop, the bishop blesses the bishop.

   (ii)   If a bishop meets another bishop, the bishop blesses the bishop.

   (iii)   If a bishop meets another bishop, the bishop blesses the other bishop.

My impression is that, while none of these are particularly good, their acceptability increases from the first to the last example, apparently because of the effect of *other* (for differences between the first two, in their pronominal versions, see Kroll (2008)).

Another point I'd like to note is that bishop sentences with only one definite description in the consequent seem to be especially bad compared to a pronoun.

(273)   When a bishop meets another bishop, he / ??the bishop usually smiles.

Turning to the German articles, there is, once again, a contrast between the weak and the strong article in sentences like these.

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to the situations quantified over in the restrictor. See chapter 4 for discussion of cases of transparent interpretations of donkey descriptions, which also require this to be a possibility.

[2]But note that this may, at least in part, be due to independent problems with using a full definite where a pronoun could be used.

(274) a. *Wenn ein Minister den anderen Ministern im        Kabinett den*
When a    minister the other     ministers in-the$_{weak}$ cabinet   the

*Haushalt kürzt, dann gehen #beim      / bei dem      Minister*
budget    cuts    then go      by-the$_{weak}$ / by  the$_{strong}$ minister

*(✓ beim      Kanzler)  viele Beschwerden ein.*
(by-the$_{weak}$ chancellor) many complaints     in
'When a minister cuts the budget of other ministers in the cabinet, the

minister receives a lot of complaints.'

b. *Wenn ein Professor einem anderen Professor einen Studenten*
When a    professor a     other   professor a     student

*empfiehlt,  dann wird dessen Bewerbung #vom      / von dem*
recommends then is   his    application by-the$_{weak}$ / by  the$_{strong}$

*Professor mit  großer Aufmerksamkeit gelesen.*
professor with great  attention        read
'When a professor recommends a student to another professor, his appli-

cation is read by the professor with great attention.'

The observed contrast is again very much in line with what we have seen so far. Uniqueness is of central importance for weak-article definites, and since it does not hold in the present examples, it is to be expected that they are not available here. The strong-article definites, on the other hand, are interpreted anaphorically, and, therefore, the lack of uniqueness is not detrimental.[3]  While there is at least one proposal that reconciles bishop-sentences with a situation-based uniqueness analysis of donkey definites, namely that by Elbourne (2005), these German data suggest that such a proposal is not needed, as the German uniqueness definites (expressed by the weak article) are not available in this configuration in the first place. The type of definite that is available in bishop-sentences (expressed by the strong article) has been independently shown to allow for anaphoric interpretations in contexts where

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[3]Given that bishop-sentences provide two potential antecedents, there still may be some degree of uncertainty about which interpretation is intended, especially if the predicate is equally plausible for either antecedent.

uniqueness does not hold. Bishop-sentences thus serve as a useful test for what type of definite we are dealing with.[4]

### 6.1.3 Relational Anaphora

Bridging uses of strong articles, which I refer to as relational anaphora, provide another illustration of the anaphoric nature of strong-article definites. Recall the example in (275) from chapter 2.

(275) *Hans entdeckte in der Bibliothek einen Roman über den Hudson.*
Hans discovered in the library a novel about the Hudson.

*Dabei fiel ihm ein, dass er vor langer Zeit einmal einen*
In the process remembered he$_{Dat}$ PART that he a long time ago once a

*Vortrag #vom / von dem Autor besucht hatte.*
lecture by-the$_{weak}$ / by the$_{strong}$ author attended had.

'Hans discovered a novel about the Hudson in the library. In the process, he remembered that he had attended a lecture by the author a long time ago.'

The strong-article definite *the$_{strong}$ author* is interpreted as the author of the novel mentioned in the first part of the sentence. I argue that this comes about because the relatum argument of the relational noun *author* receives an anaphoric interpretation.

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[4]Sage-plant examples are also highly relevant in this regard, though the picture gets slightly more complicated, as we have to take into consideration the possibilities for interpreting the situation pronoun on the definite: if it can be interpreted relative to the restrictor situations, uniqueness should be met, and the weak article should, in principle, be available. However, this does not seem to be the case.

(i) *Jeder, der heute ein Hemd kauft, bekommt #zum / zu dem Hemd ein*
everyone that today a shirt buys gets to-the$_{weak}$ / to the$_{strong}$ shirt a
*weiteres Hemd umsonst dazu.*
further shirt for free along

'Everyone that buys a shirt today gets another shirt for free along with the shirt.'

If this indeed holds generally, it could be taken as an argument against allowing situation pronouns to be interpreted relative to the restrictor situations (which poses a significant theoretical challenge anyway, as mentioned in chapter 4). Disallowing that option would predict that weak-article donkey definites cannot receive a transparent interpretation, since I argued in chapter 4 that such an interpretation requires the definite to be evaluated relative to the restrictor. I leave these issues for future research.

Analyzing examples such as (275) as involving a relation with an anaphoric argument is by no means new, but the question is where this relation comes from. Chierchia (1995) makes a proposal along these lines for English definites, extending Cooper's (1979) analysis of pronouns to a general analysis of the (English) definite article (see also the discussion of Chierchia's proposal in chapter 3 above). This analysis assumes a $C$-variable for domain restriction, and the relation needed for analyzing bridging examples is assumed to be the contextually supplied value of the $C$-variable.

However, such a $C$-variable based account is not restrictive enough, as the relational nature of the noun in (275) plays a crucial role for making the anaphoric interpretation available. Consider the slight variation of the bridging use of a strong-article definite in (275) below, where *author* has been replaced by the nearly synonymous *novelist*. Somewhat surprisingly, this renders the sentence infelicitous.[5,6]

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[5]The contrast may be even more clear in a parallel quantificational pair of examples, such as in the following:

(62)  ✓ *Jeder,    der   einen Roman gekauft hat, hatte schon   einmal eine Kurzgeschichte*
      Everyone that a    novel  bought has had  already once   a     short story
      ***von dem    Autor*** *gelesen.*
      by   the$_{strong}$ author read
      'Everyone that bought a novel had already once read a short story by the author.'

(i)  # *Jeder,    der   einen Roman gekauft hat, hatte schon   einmal eine Kurzgeschichte*
     Everyone that a    novel  bought has had  already once   a     short story
     ***von dem    Schriftsteller*** *gelesen.*
     by   the$_{strong}$ novelist        read
     'Everyone that bought a novel had already once read a short story by the novelist.'

More issues relating to quantificational examples will be discussed below.

[6]Note that here, as well as in the examples below that make the same point about non-relational nouns, the weak article is equally bad.

(275′)   # *Hans entdeckte in der Bibliothek einen Roman über den Hudson.*
  Hans  discovered  in  the  library       a       novel     about  the  Hudson.

  *Dabei          fiel         ihm   ein,    dass er vor langer Zeit einmal*
  In the process remembered he$_{Dat}$ PART that  he a long time ago  once

  *einen Vortrag von dem      Schriftsteller besucht  hatte.*
  a       lecture  by  the$_{strong}$ novelist      attended had.
  'Hans discovered a novel about the Hudson in the library.  In the process,
  he remembered that he had attended a lecture by the novelist a long time
  ago.'

Since the two nouns are closely related in meaning, what could underlie this contrast in their ability to serve in a bridging use of a strong-article definite? One way in which the two nouns differ is that *author* is relational, whereas *novelist* is not, as shown by the familiar test for relationality using the availability of *of*-possessives from Barker (1995):

(276)   a.  ✓ Der Autor von dem Buch

        b.  # Der Schriftsteller von dem Buch/Roman

(277)   a.  ✓ The author of the book

        b.  # The novelist of the book/novel

If the relation were introduced as the contextually supplied value of the $C$-variable, this would be rather surprising: why should the nature of the lexical meaning of the noun in the definite description be of such great importance?  After all, in talking about a novel and a novelist, shouldn't it be easy enough to suppose that the novelist is the one that wrote the novel in question and assume an appropriate contextual value for $C$?

Further evidence that the relationality of the noun is in fact crucial comes from the parallel example in (279).

(278)   a.  *der Maler  von dem Bild*
          the painter of   the  picture

       b.  # *der Künstler von dem Bild*
           the artist     of   the  picture

(279)   *Jedes Mal, wenn Hans ein Gemälde in einem Museum besonders gefällt,*
        every time when Hans a   painting  in a     museum  especially likes

        *kauft er sich   hinterher eine Biografie von dem     Maler  / #Künstler.*
        buys  he REFL afterwards a     biography of   the$_{strong}$ painter / artist
        'Every time Hans really likes a painting in a museum he buys a biography of

        the painter / artist afterwards.'

As in the first example, we are exchanging a relational noun, *painter*, with a non-relational one that is nonetheless close in meaning, *artist*. And as before, this change makes the covarying bridging interpretation of the relevant strong-article definite unavailable.

There is another way of manipulating the relationality of the noun in these cases which lends further support to the conclusion that this property of the noun is crucial for relational anaphora. Forming a compound with a relational noun like *author* can reduce the arity of the relational noun, e.g., because the first part of the compound saturates the argument slot for the relatum argument word-internally. (280-282) provides an illustration of this phenomenon, which again makes use of Barker's (1995) test based on the possibility of forming 'of'-possessives:

(280)   a.  ✓ *Der Autor  von dem Artikel*
           the  author of   the   article

       b.  # *Der Kinderbuchautor    von dem Artikel*
           the  children's book author of   the   article

(281)   a.  ✓ *Der Maler  von dem Gemälde*
           the  painter of   the   painting

       b.  # *Der Wandbildmaler von dem Gemälde*
           the  mural painter    of   the   painting

(282)  a.  ✓ The author of the article

  b.  # The children's book author of the article

While the simple relational nouns are perfectly fine in an 'of'-possessive, this is not the case for the compound-variations, where the first part of the compound serves as a word-internal relatum argument. Using this strategy for creating a non-relational noun from a relational one, the intended bridging interpretation in quantificational sentences with the same basic structure as the examples considered above again becomes unavailable:

(283)  # *Jeder    der  einen Artikel für den Kurs über Vorschulliteratur    gelesen*
      everyone that a      article   for  the  class  on    pre-school-literature read

   *hat, versuchte, im     Internet ein Foto    von dem*
   has  tried        on-the Internet  a    picture of   the$_{strong}$

   *Kinderbuchautor     zu finden.*
   children's book author  to  find
   'Everyone that read an article for the class on literature for pre-schoolers

   tried to find a picture of the children's book author on the internet.'

   a.  $C_{i_1} = \lambda x.x$ wrote the article $y_1$ read

(284)  # *Jedes Mal, wenn Hans ein Gemälde in einem Museum besonders gefällt,*
      every  time  when Hans  a    painting  in  a      museum  especially  likes

   *kauft er sich    hinterher  eine Biografie von dem      Wandbildmaler.*
   buys  he REFL afterwards  a    biography  of    the$_{strong}$  mural painter
   'Every time Hans really likes a painting in a museum he buys a biography

   of the mural-painter afterwards.'

   a.  $C_{i_1} = \lambda x.x$ painted the painting $y_1$ liked

(285)  # Everyone that read an article for the class on literature for pre-schoolers

   wrote a report about the children's book author.

   a.  $C_{i_1} = \lambda x.x$ wrote the article $y_1$ read

As before, this is unexpected if we assume that the relational $C$- variable that is introduced by the strong article is simply provided by the context: the relation corresponding to 'wrote the article $y_1$ read', for example should be easily available as a value for $C_{i_1}$ in (283) (where the index $i_1$ would be bound by the topmost quantifier), no matter whether the noun is a compound or relational. But this is apparently not the case.

These observations indicate that a simple $C$-variable account that allows a fairly broad range of pragmatic strategies for letting the context supply a value for $C$ is not restrictive enough. Relational nouns seem to allow for a special way of introducing an anaphoric dependency on a 'bridging antecedent'.

There is a related point concerning the role of antecedents for regular anaphoric uses of strong-article definites. While the non-relational noun phrases in the set of examples just considered are unable to serve in bridging uses, they are, not surprisingly, completely felicitous if there is an overt indefinite antecedent, as illustrated by the following further variation of (279).

(286)  *Jedes Mal, wenn Hans ein Bild     von einem britischen Künstler besonders*
       every time when Hans a    picture by  a        British     artist       especially

       *gefällt, kauft er sich    eine Biografie von dem        Künstler.*
       likes      buys  he REFL a     biography of   the$_{strong}$  artist
       'Every time Hans really likes a picture by a British artist he buys a biography
       of the artist.'

This is yet another indication that there is something special about the relationship between an indefinite antecedent and an anaphoric definite that goes beyond the notion of a contextually supplied relation, as a $C$-variable account would have it.

Interestingly, a parallel point has been made for English in connection with the role that antecedents play for pronouns. This goes back to Postal's (1969) discussion of 'anaphoric islands', and has been discussed more recently under the label of 'the problem of the formal link' (Heim 1982, Kadmon 1987, Heim 1990, Elbourne 2005).

It is of particular importance for accounts of donkey sentences that use a contextually supplied property-variable in the spirit of Cooper (1979) face. The contrast there is the following:

(287)   # Every married woman sat next to him.

(288)   ✓ Every woman that was married to a man sat next to him.

If one analyzes pronouns as definite descriptions whose description is supplied by the context, it is not clear why it should matter whether or not there is an indefinite antecedent in the restrictor of the quantifier here, as long as a suitable relation (such as the one expressed by *married*) is salient in the context. The point carries over to full definite descriptions in English as well, as witnessed by the following set of data.

(289)   a.  # Every waiter that served a married woman also served the man.

      b.  ✓ Every waiter that served a married woman also served the husband.

      c.  ✓ Every waiter that served a woman that was married to a man also served the man.

A covarying interpretation for the definite *the man* in (289a) is not available. Again, this is surprising from the perspective of a $C$-variable account, as the relation 'married' should be highly salient in the context (given that *married* appeared earlier in the sentence), and should thus be available to provide the contextually supplied relation required by the definite. However, this is not possible. A covarying interpretation becomes easily available, though, if we replace the (non-relational) noun *man* with the (relational) noun *husband*, as in (289b). Furthermore, the presence of an antecedent makes the covarying interpretation for *the man* easily available (289c).

There are at least two important points that can be made based on the set of data considered here. First, the relationality of the noun in a definite seems to play an important role for making a bridging interpretation with the strong article available by creating the possibility of an anaphoric interpretation of the relatum argument.

Secondly, strong-article definites with non-relational nouns do not seem to be generally able to simply pick up some contextually supplied value for $C$ that could play the role that the relational nouns seem to play in parallel cases. However, once there is an indefinite antecedent present for a non-relational noun, the corresponding definite becomes perfectly acceptable. The conclusion I draw from this below is that the relationship between antecedents and anaphoric definites has to be encoded directly, as is the case in dynamic frameworks, which will be introduced in section 6.2.1.

### 6.1.4 Summary

What all of the examples considered in this section have in common, speaking in intuitive terms, is that strong-article definites are used anaphorically, i.e., their interpretation is based on that of a preceding expression, which serves as its antecedent. This is indeed the way the core use of the strong article has been characterized in the literature, as we saw in chapter 2. Any analysis of the strong article has to capture this anaphoric dependency, and it needs to do so in a manner that covers covarying interpretations in donkey sentences, (especially in bishop sentences) and that can be extended to cases of relational anaphora. Furthermore, it needs to fit with the differences between the weak and strong articles that we have seen throughout. In the following section, I introduce the general background for a dynamic analysis of definites, which provides the basic framework for encoding anaphoricity. Next, I propose a specific analysis for how the anaphoric component can be incorporated into the meaning of the strong article.

## 6.2 An Anaphoric Analysis of Strong-Article Definites

### 6.2.1 Encoding Anaphoricity in Definites

Let us step back and consider what options are available to us in general for ensuring an anaphoric interpretation of strong-article definites. We have already seen

that uniqueness relative to a situation is not sufficient for this, as the weak article, which we have analyzed as involving situational uniqueness, is not available in the relevant types of examples discussed in the preceding section. The strong article thus must include something else that encodes anaphoricity.

One option to consider is to assume that the strong article, but not the weak article, involves a $C$-variable for domain restriction which allows it to circumvent problems with uniqueness, e.g., in bishop sentences. Using domain restriction for encoding anaphoricity has been suggested as a possibility by Heim (1991) and Neale (1990), and, as noted above, Elbourne (2005) makes use of this idea in his account of bishop-sentences (but note that these authors did not see themselves faced with the issue of distinguishing two different types of definite articles and therefore were pursuing a unified account).[7] However, in the present context, this option is unattractive for a number of reasons. First, I have argued in chapter 3 that situational domain restriction is to be preferred over $C$-variable accounts. Adding a $C$-variable to the situational account would be quite uneconomical, as it would assume two mechanisms with a large overlap in coverage. Furthermore, it is hard to see how the presence of a $C$-variable could enforce an anaphoric interpretation, since the value for $C$ can presumably be supplied in various ways by the context. Finally, it is hard to see how one can appropriately restrict the way in which the value of the $C$-variable is supplied, a problem that becomes particularly acute in light of cases of relational anaphora, as we already saw in section 6.1.3.

Another potential option might be to somehow build anaphoricity into the situation argument of the definite by restricting what situations the situation pronoun of weak- and strong-article definites can stand for, e.g., along the lines of the account of the contrast between definite and demonstrative descriptions proposed by Wolter

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[7]As already mentioned in section 6.1.3, Chierchia's (1995) also makes use of a $C$-variable, but he assumes that its arguments can be dynamically bound.

(2006c). However, I do not currently see how such an approach could be formulated to account for the differences between definites involving the two German articles. In any case, such an approach would seem to require some kind of binding theory for situation pronouns (as argued for by Percus (2000)), which seems unattractive given that I showed in chapter 3 that the need for such a binding theory does not arise in the present system.

What does this leave us with? The most direct approach to encoding anaphoricity is that of dynamic semantics (broadly speaking), which is also the predominant one used for this purpose in the literature. The basic idea of a dynamic analysis of definite and indefinite noun phrases in the tradition of Kamp (1981) and Heim (1982) is that they introduce (restricted) variables, which are represented by indices on the noun phrase. Heim's (1982) analysis is couched in a semantic framework in which the meaning of sentences is represented by their capacity to change the context. In an extension of Stalnaker's (1978) notion, the context is argued to include sets of assignment functions. Based on the assumption that pronouns introduce variables, the effect of a sentence such as *He$_1$ is tired* on the context is that it reduces the set of assignment functions by excluding all those that do not assign an individual that is tired to the index 1.

The meaning of indefinite and definite noun phrases (including pronouns and definite descriptions) is then as in (290), where the difference between the two is captured by the Novelty Condition in (290b).

(290)     a.  Let $c$ be a context (here a set of assignment functions)

and let $p$ be an atomic formula, then, if defined :

$c + p = \{g : Dom(g) = (\bigcup Dom(f)\ s.t.\ f \in c) \cup \{i : x_i\ \text{occurs in}\ p\}$

$\&\ g$ is an extension of one of the functions in $c$ $\&\ g$ verifies $p\}$

b. The Novelty/Familiarity Condition

$c + p$ is only defined if for every $NP_i$ that $p$ contains,

if $NP_i$ is definite, then $x_i \in Dom(c)$, and

if $NP_i$ is indefinite, then $x_i \notin Dom(c)$.

In a nutshell, the index of definite noun phrases already has to be assigned a value by the assignment functions in context $c$, whereas the index of indefinite noun phrases has to be new.

While the initial proposals in this direction required fairly comprehensive reconceptualizations of the general semantic framework, later variants of dynamic accounts have shown that comparable results are obtainable in more traditional frameworks as well. For example, Groenendijk and Stokhof (1990), Groenendijk and Stokhof (1991), and Chierchia (1995) (among many others) adopt a more traditional view of indefinites by analyzing them as existential quantifiers. Their systems involve a dynamic notion of conjunction, however, which licenses the following scope theorem:

(291)   $(\exists x \ \Phi \ \& \ \Psi) \Leftrightarrow \exists x \ (\Phi \ \& \ \Psi)$

This means that the existential quantifier can, effectively, take scope beyond its clause and thereby bind pronouns and definites in donkey sentences and discourse anaphoric cases dynamically. Building on Groenendijk and Stokhof's work, Dekker (1994) proposes an even more conservative version of a dynamic system which is a proper extension of predicate logic. His main invention is that anaphoric pronouns are not seen as variables, but make up a category of terms of their own. They are interpreted relative to information states, which consist of sets of n-tuples of individuals. A pronoun $p_i$ then picks out the $n - i^{th}$ element of such an n-tuple.

While the semantic frameworks and the meaning of indefinites vary across these various versions of dynamic approaches, definites basically play the same role in all of them: they essentially serve as variables that can be bound in one way or another.

Without going into further details of the various proposals and their advantages and disadvantages, I will refer to this possibility in the following discussion as definites being dynamically bound by their antecedent.

A dynamic analysis seems attractive for strong-article definites, especially since most, if not all, of the uses of definites that are problematic for a dynamic theory (such as the larger situation uses from chapter 5, for example) are expressed with the weak article. Likewise, most of the cases that are problematic for uniqueness analysis are expressed with the strong article. It should be noted, however, that adding a dynamic dimension for strong article definites to the situation semantic framework developed so far is no simple feat and will give rise to a number of questions and issues that will have to be explored in future work. For example, we will have to ask whether situation pronouns behave like regular pronouns in being able to be bound dynamically. At the same time, such issues likely will have to be addressed for independent reasons, as dynamic mechanisms are generally assumed to be necessary for accounting for a theory of presupposition (but see Schlenker (2009) for a recent proposal of a non-dynamic account of presuppositions). I will not provide a fully spelled out extension of the semantics from the preceding chapters here, and will mostly restrict my analysis to semi-technical paraphrases that should suffice to indicate the type of dynamic analysis that would be appropriate (and which could, in principle, be formulated in any version thereof).

Another aspect that we need to consider in formulating an analysis is the question of how the strong and the weak article are related to one another. If we propose completely different and unrelated analyses for them, it will be difficult to draw any connections between the two forms, be it diachronically or synchronically. But given the similarities in the forms occurring in the two paradigms for definite articles in the various languages and dialects considered in chapter 2, it seems highly desirable to formulate meanings for the two articles that, while sufficiently distinct to capture the

differences we find between them, are similar enough to provide insight into how they are related. In standard German, where the morphological contrast shows up only in certain syntactic configurations, the issue becomes even more obvious, as here we would have to argue for an ambiguity involving two completely unrelated meanings in all of the other contexts that do not allow for contraction, since there the same form is used for both the strong and the weak article.

Simply assigning a classical dynamic analysis to strong-article definites and a uniqueness analysis to weak-article definites does not seem promising in this regard, since the respective meanings for the two would indeed be unrelated. However, as I will spell out in more detail in the following section, it is possible to incorporate an anaphoric element into a uniqueness definite in formulating the meaning for the strong article. This allows us to keep the two articles more similar, and it fits with the claim made by various authors that dynamic analyses of definites, too, need to incorporate a uniqueness requirement (Kadmon 1990, Roberts 2003). As we will see below in section 6.1.3, this issue becomes particularly important for cases of relational anaphora (i.e., cases of bridging with the strong article, of the form *. . . a book . . . the author*).

### 6.2.2   Building Anaphoricity into the Strong Article

One possibility for formulating the meaning of the strong article in a way that captures its anaphoric nature but at the same time keeps it similar to that of the weak article is to include an anaphoric index argument, interpreted as an individual variable, in its meaning. In a sense, this amounts to building a (phonologically null) pronominal element into strong-article definites (assuming we see pronouns as denoting variables), and can be seen as a combination of classical and dynamic views of definites. Proposals along these lines have, in fact, been made by Elbourne (2005) and Neale (2004), though for different purposes. Elbourne (2005, sections 3.3.2 and

3.3.3) proposes that (English) definite articles take two arguments, an NP and an index.

(292)   [[the 1] murderer]

Elbourne's primary motivation for this stems from cases where a definite description is (or at least appears to be) syntactically bound, as in (293).[8]

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

(Elbourne 2005, p. 112)

In order for a definite to be bound syntactically in the standard way, Elbourne argues, it needs to contain something that can be bound, such as a pronoun, and the index does exactly this job.[9]

A similar proposal, made by Neale (2004), says that an identity relation and a referential term can be introduced as part of the implicit domain restriction he assumes for incomplete descriptions. This is illustrated with the sentence in (294a), which Neale suggests can be interpreted as (294b) (in Neale's notation within his Russellian analysis of definites), where $a$ is an individual constant.

(294)   a.  The guy is drunk.

        b.  $[the_x\colon guy(x) \bullet x = a]\ x\ is\ drunk$

(Neale 2004, p. 171)

Both Elbourne and Neale essentially see the additional restriction provided by the identity relation as optional: Elbourne uses a special index to 'neutralize' its

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[8]As Angelika Kratzer, p.c., has pointed out, it is not clear that this is indeed a case of syntactic binding just because the relevant quantifier c-commands the definite. Assuming that quantificational determiners introduce quantification over situations, as in our system (as well as in Elbourne's), the relevant covarying interpretation of the definite in cases like these could also be due to binding of the situation argument (see also Kratzer 2009).

[9]He also discusses further consequences of the structure he assumes, concerning referential interpretations of definites and the copy theory of movement. See below for a brief discussion.

effect, and within Neale's implicit approach to domain restriction this is just one of many possible ways in which the domain can be restricted. They also both point to the relevance of their analysis to a particular use for such meanings for definite descriptions, namely in accounting for referential, as opposed to attributive, uses (Donellan 1966).[10]

Given the data from the German definites, one way of adapting the general idea of these approaches for our analysis is to say that only the strong, but not the weak article, introduces this extra individual argument and the relevant identity condition. Adapting Elbourne's interpretation to the system used here then yields the following meaning for the strong definite article.[11]

(295)  a.  $\lambda s_r \lambda P.\lambda y : \exists!x(P(x)(s_r) \ \& \ x = y).\iota x[P(x)(s_r) \ \& \ x = y]$

b.  $[_{DP}1 \ [[the \ s_r] \ NP]]$

c.  $[\![(295b)]\!]^g = \iota x.\text{NP}(x)(s_r) \ \& \ x = g(1)$

The proposal in (295) introduces the extra individual argument in the same manner as in Elbourne (2005), namely by adding an index as an argument inside of the DP.[12] We have to assume that the relevant syntactic slot is restricted syntactically to only allow indices, and no other individual denoting expressions. This is parallel to

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[10]I will not have anything to say at the moment about the relation of my proposal to the referential-attributive distinction. Transferring Elbourne's and Neale's points to the adaptation of the proposal to German definites below, there is a straightforward prediction that only the strong article should have referential uses. It is not clear to me whether this is borne out empirically.

[11]Elbourne's version of the entry is as follows:

(i)  $\lambda f_{\langle e,t \rangle}.\lambda g : g \in D_{\langle e,t \rangle} \& \ \exists!x(f(x) = 1 \ \& \ g(x) = 1).\iota x(f(x) = 1 \ \& \ g(x) = 1)$

(Elbourne 2005, p. 114)

He assumes indices to be of type $\langle e,t \rangle$, and, more specifically, functions from natural numbers to certain partial functions of that type, namely those of the form $[\lambda x.x = \text{John}]$, i.e., he introduces the identity condition as part of the trace. As far as I can tell this does not amount to a substantive difference once all the pieces of a DP are put together.

[12]I introduce the index argument last, for reasons relating to the analysis of relational anaphora in section 6.2.3, but I don't see any substantive differences here, e.g., compared to Elbourne's version where the index is the first argument of the determiner.

Elbourne's proposal (although, as noted in footnote 11, he assumes indices to be of type $\langle e, t \rangle$).

Note that, as Elbourne points out, Fox's (2002) rule for interpreting traces, trace conversion, yields equivalent interpretations by replacing traces (or rather, copies of a moved quantifier phrase) with a definite description that contains an identity condition and a bound variable.[13]

The interpretation of the index in (295) is parallel to that of pronouns. When it is not bound, it is interpreted in the same way that free variables are generally interpreted, namely by the Traces and Pronouns rule from chapter 3, i.e., it receives a value via the assignment function $g$. DPs of the form (295b) then receive the interpretation in (295c).

Turning to the German data, the anaphoric examples from above, such as (25) and (26), are accounted for in the following way on this analysis.

(25) *In der New Yorker Bibliothek gibt    es     **ein Buch** über   Topinambur.*
In the New York    library    exists EXPL a    book   about topinambur.

*Neulich  war ich dort  und habe **#im**     / **in dem**    **Buch** nach*
Recently was I    there and have in-the$_{weak}$ / in  the$_{strong}$ book   looked for

*einer Antwort auf die Frage    gesucht, ob   man       Topinambur grillen*
an    answer   to  the question whether  one topinambur grill          can.

*kann.*

'In the New York public library, there is a book about topinambur. Recently, I was there and looked in the book for an answer to the question of whether one can grill topinambur.'

a. $[1 \ [[the_{strong} \ s_r] \ book \ ]]^g =$

b. $[\![(25a)]\!]^g = \iota x.\text{book}(x)(s_r) \ \& \ x = g(1)$

_____

[13]An analysis along these lines may also be relevant in the interpretation of correlatives.

(26) *Bei      der Gutshausbesichtigung hat mich **eines der      Zimmer***
     During the mansion tour           has me     one    the$_{GEN}$ rooms

     *besonders beeindruckt. Angeblich  hat Goethe im        Jahr 1810 eine*
     especially impressed    Supposedly has Goethe in-the$_{weak}$ year 1810 a

     *Nacht **#im       / in dem**     Zimmer verbracht.*
     night  in-the$_{weak}$ / in the$_{strong}$ room     spent
     'One of the rooms especially impressed me during the mansion tour. Suppos-
     edly Goethe spent a night in the room in 1810.'

     a.  $[1\ [[the_{strong}\ s_r]\ room\ ]]^g =$

     b.  $[\![(26a)]\!]^g = \iota x.\text{room}(x)(s_r)\ \&\ x = g(1)$

All that is required for the correct interpretation is that the assignment function picks out the individual introduced by the indefinite in the first sentence as the value of the index on the strong-article definite. As noted above, there are various theoretical options for how exactly the indefinite affects the assignment function. But as long as one ensures that this happens in a way that the index on the definite can be interpreted relative to its antecedent, the right interpretation will ensue.

One interesting aspect of the meaning we are presently considering for the strong article is that the addition of the index argument essentially renders the uniqueness requirement of the definite article without effect in these simple anaphoric examples (though it reappears in cases of relational anaphora, as we will see in section 6.2.3). Elbourne (2005) also raises this issue in his discussion of definites with an index argument, and points to examples such as (296) as providing empirical support for this aspect of the analysis.

(296)   Senator Thad Cochran, the Mississippi Republican, announced today that . . .

                                                    (Elbourne 2005, p. 117)

He notes that use of the definite description *the Mississippi Republican* does not (or at least not necessarily) give rise to an interpretation according to which Thad

Cochran is the only Mississippi Republican (or even the only Republican senator from Mississippi), and attributes this to the possibility of an interpretation along the lines of the analysis we are currently pursuing, with Thad Cochran serving as the value of the index introduced with the definite.[14]

(297)   $[\![1 \ [the \ [Mississippi \ Republican]]]\!] = \iota x.MR(x) \ \& \ x = g(1)$

The parallel German example in (298) makes the same point within our analysis.

(298)   *Thad Cochran und Nielsen Cochran, der jüngere Bruder #vom      / von*
        Thad Cochran and Nielsen Cochran   the younger brother of-the$_{weak}$ / of

        *dem      Senator aus  Mississippi, ...*
        the$_{strong}$ senator  from Mississippi   ...

        'Thad Cochran and Nielsen Cochran, the younger brother of the senator from Mississippi, ...

The contrast between the German articles here is as expected. The weak article is not felicitous, as it gives rise to an unwarranted uniqueness interpretation, according to which there is only one senator from Mississippi. The strong article, on the other hand, which introduces an index that can be assigned Thad Cochran as a value, as in Elbourne's example above, is perfectly fine and does not give rise to any implication of uniqueness.

As I already noted earlier, it seems desirable to provide an account of the weak and strong articles according to which their meanings, while sufficiently distinct to capture their differences, are still related to one another in a fairly straightforward way. On the present account this is indeed the case, as becomes immediately apparent when we consider the two entries side by side.[15]

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[14]For consistency in presentation, I provide the meaning Elbourne proposes in my version of the analysis.

[15]For ease of presentation, I omit the presuppositional part of the meaning here.

(299)    a.  $\lambda s_r.\lambda P.\ \iota x.P(x)(s_r)$

          b.  $\lambda s_r \lambda P.\lambda y.\ \iota x.P(x)(s_r)\ \&\ x = y$

The strong article is made up of the meaning of the weak article plus an anaphoric index argument.[16] There are several points that support this perspective. First of all, there is the important question of the relationship between the forms of the weak and the strong articles and the meanings associated with them. Both in standard German and in all of the dialects I am aware of that exhibit a parallel article contrast, the form of the strong article is morpho-phonologically more complex, and the form of the weak article appears to be a morpho-phonologically reduced version of the strong article. It therefore seems highly unlikely that we are dealing with unrelated lexical entries, both with respect to the form and the meaning of the articles. Furthermore, there seems to be a connection between the meanings and the forms used to express them. While I do not offer a full morphological analysis of the relationship between the forms, the meanings proposed here suggest a clear direction for formulating an account of the form-meaning relationship. The semantically more complex, strong article is expressed by the more complex form, and the semantically simpler weak article is expressed by a reduced form. Venturing even further, at least for the case of standard German, we can consider the possibility that the presence of the anaphoric index high up in the DP, in a position between the determiner and a preceding preposition, is responsible for blocking contraction of the strong article with prepositions (assuming

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[16]Angelika Kratzer (p.c.) points out that the situation argument, $s_r$, may be superfluous in the meaning of the strong article and suggests an alternative analysis on which the strong article takes the extra individual argument in place of the situation pronoun. This in turn, might lead towards an account of the contrast in form that we find with the two articles, e.g., by saying that only individual pronouns, but not situation pronouns, can block contraction (assuming the index or the situation pronoun appears in the specifier of strong article definites). I leave a more detailed exploration of this intriguing variant of my analysis for future research. One key empirical question is whether it makes correct predictions for relational anaphora, as analyzed in section 6.2.3. According to the proposal in the main text, these should allow for effects of situational domain restriction, whereas the proposal just sketched would not.

we analyze the weak form as involving some type of movement of the article to merge with the preposition; see chapter 2 for discussion).

(300)  a. structure of a weak-article DP:  $[_{PP}P\ [_{DP}D\ [NP]]]$

   b. structure of a strong-article DP: $[_{PP}P\ [_{DP}1\ [D\ [NP]]]]$

Another point relates to uniqueness-effects with relational anaphora, and will be discussed in section 6.2.3 below. The final point involves the existence of overt expressions that seem to play the same (or at least a very similar) role as the anaphoric index in the strong article, which, when combined with the weak article, seem to render a meaning equivalent to that of the strong article. One particularly interesting candidate in this respect is the (slightly archaic) adjective *selbig* (the closest English equivalent may be *selfsame*; it likely is comparable to Italian *stesso*). Consider the following examples.

(301)  Context:  Die Angeklagte hatte sich im Jahre 1850 mit einem toskanischen Bauern angefreundet.

('The defendant had befriended a Tuscan farmer in the year 1850.')

   a. *Zwei Jahre später kaufte sie von  dem      Bauern einen Esel.*
      Two  years  later  bought she from the$_{strong}$ farmer  a       donkey

   b. *Zwei Jahre später kaufte  sie vom        selbigen Bauern einen Esel.*
      Two  years  later  bought she from-the$_{weak}$ SELBIG farmer  a       donkey

   c. # *Zwei Jahre später kaufte  sie vom        Bauern einen Esel.*
      Two  years  later  bought she from-the$_{weak}$ farmer  a       donkey
      Intended paraphrase for all: 'Two years later, she bought a donkey from the farmer.

Angelika Kratzer (p.c.)

The version with the weak article plus *selbig* in (301b) seems to be equivalent to the strong article definite in (301a) in its ability to anaphorically pick up the farmer introduced in the first sentence, as well as to other strictly anaphoric variations, such

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as *von eben/genau diesem Bauern* ('from this very farmer') or *von demselben Bauern* ('from the same farmer').[17] The weak article alone, on the other hand, is not able to play this anaphoric role. This suggests that *selbig* plays the same role as the index argument that the strong article introduces. Indeed, a straightforward analysis of *selbig* as an anaphoric adjective would give it a meaning that also involves an index, and lets it express the property of being identical to that index.

(302)   $[\![ selbig_1 ]\!]^g = \lambda x . x = g(1)$

While it appears in a different position than the index (and would have to combine with the noun via Predicate Modification), its effect on the overall interpretation of the noun phrase would be identical.[18]

I cannot go into a more detailed discussion of anaphoric expressions such as *selbig*, but I think they provide at least suggestive further evidence that building a meaning

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[17]Note that (301b) can alternatively be expressed as

(i)   Zwei Jahre später kaufte sie von selbigem Bauern einen Esel.

I do not have anything to say about what determines the location in which the case marking surfaces, e.g., with respect to potential structural correlates. One possibility to consider would be that in (i), the adjective merges with the determiner, rather than the determiner merging with the preposition.

[18]But note that *selbig* has a distinctly 'referential feel' to it, and apparently cannot play the same anaphoric role in a donkey sentence (Note that this is exactly the opposite pattern of that found for *jeweilig* ('respective')).

(1)   # *Jedes Mal, wenn mir bei   einer Gutshausbesichtigung eines der   Zimmer*
      Every time when me during a   mansion tour        one  the$_{GEN}$ rooms
      *besonders  gefällt, finde ich später heraus, dass eine berühmte Person eine Nacht*
      especially like   find I  later  out    that a   famous  person a   night
      <u>*im selbigen Zimmer*</u> *verbracht hat.*
      <u>in-the$_{weak}$</u>      /      in  the$_{strong}$ room spent has
      'Every time when I particularly like one of the rooms during a mansion tour, I later find out that a famous person spent a night in the room.'

(2)   # *Jedes Mal, wenn sich   die Angeklagte mit  einem Bauern anfreundete, kaufte*
      Every time when REFL the defendant with a     farmer befriended  bought
      *sie später #vom      selbigen  / von dem     Bauern einen Esel.*
      she later  by-the$_{weak}$ SELBIG / by the$_{strong}$ farmer a    donkey
      'Every time the defendant befriended a farmer, she later bought a donkey from the farmer.'

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for the strong article that is made up of the weak-article meaning plus an additional anaphoric index is on the right track. It will be an interesting project for future work to investigate such anaphoric expressions in more detail in order to gain a better understanding of their relation to the analysis of anaphoricity in definites and pronouns.

### 6.2.3 Extending the Account to Relational Anaphora

In section 6.1.3 we saw evidence that relational anaphora (i.e., cases of bridging with the strong article) are restricted to relational nouns, based on contrasts such as the following:

(275) *Hans entdeckte in der Bibliothek einen Roman über   den Hudson.*
Hans  discovered in  the  library       a       novel    about the  Hudson.

*Dabei        fiel        ihm   ein,    dass er vor langer Zeit einmal einen*
In the process remembered he$_{Dat}$ PART that  he a long time ago  once     a

*Vortrag #vom      / von dem     Autor besucht   hatte.*
lecture   by-the$_{weak}$  / by   the$_{strong}$  author attended had.
'Hans discovered a novel about the Hudson in the library. In the process, he remembered that he had attended a lecture by the author a long time ago.'

(275′) # *Hans entdeckte in der Bibliothek einen Roman über   den Hudson.*
Hans  discovered in  the  library       a       novel    about the  Hudson.

*Dabei        fiel        ihm   ein,    dass er vor langer Zeit einmal*
In the process remembered he$_{Dat}$ PART that  he a long time ago  once

*einen Vortrag von dem     Schriftsteller besucht   hatte.*
a       lecture  by   the$_{strong}$ novelist         attended had.
'Hans discovered a novel about the Hudson in the library. In the process, he remembered that he had attended a lecture by the novelist a long time ago.'

(295)  $[\![the_{strong}]\!] = \lambda s_r \lambda P.\lambda y.\iota x[P(x)(s_r) \ \& \ x = y]$

Once again, it seems important to take into consideration how exactly we should incorporate the relationality of the head noun into the compositional computation of the meaning of the relevant DPs. Note that in this case, type-shifters of the kind we have introduced for part-whole bridging and larger situation uses with the weak article in chapter 5, repeated below, will not be of any help since they involve closing of the relatum argument via existential closure, thus making an anaphoric interpretation of that argument impossible.

(260)  $[\![\Pi]\!] = \lambda R.\lambda x.\lambda s.\exists y.\exists s'\ [R(y)(x)(y)\ \&\ s' \leq s\ \&\ s' \leq y]$

(255b)  $[\![\Pi_w]\!] = \lambda R.\lambda x.\lambda s.\exists y\ [R(y)(x)(w_s)\ \&\ x \leq s]$

For relational anaphora, an intuitively plausible analysis of the special role of the relational noun would be to say that it provides an alternative possibility for an anaphoric interpretation of the strong-article definite by allowing its relatum argument to be anaphoric. This means that the relatum argument needs to be represented in the structure in the same way as the anaphoric argument for regular anaphoric strong-article definites (essentially as a null pronoun). But where in the structure does it appear? The first option would be to introduce it in the complement position of the head noun, which is where overt relatum arguments appear (see (304) below).

(303)  $[_{DP}D\ [_{NP}\ N_{\langle e,et\rangle}\ 1]]$

However, there are at least two points that argue against this analysis. First, the meaning proposed for the strong article in the previous section, repeated below, would not be adequate for this structure.

(295)  $\lambda s_r \lambda P.\lambda y : \exists! x(P(x)(s_r)\ \&\ x = y).\iota x[P(x)(s_r)\ \&\ x = y]$

The anaphoric index introduced by the article (represented by '$y$') would still be present in *the$_{strong}$ author* in (275) on this analysis, in addition to the anaphoric relatum argument. But there is no antecedent for an author, since we are dealing

with a case of relational anaphora - which is why we considered an anaphoric relatum argument in the first place.

Secondly, the structure in (303) does not allow us to capture the contrast between the weak and the strong article, because it locates the anaphoric relatum argument inside of the NP. Nothing would therefore prevent the weak article from appearing felicitously in (275), contrary to fact. Indeed, given the issue of the missing antecedent for the anaphoric introduced for the author (assuming the structure in (303)), we would expect the weak article to be preferred over the strong article. Interestingly, this is the pattern we find for cases where the relatum argument is expressed explicitly: recall from chapter 5 that the weak article becomes available, and indeed preferred to the strong article, in such cases, as witnessed by (304).

(304) *Hans entdeckte in der Bibliothek einen Roman über den Hudson.*
Hans discovered in the library a novel about the Hudson.

*Dabei fiel ihm ein, dass er vor langer Zeit einmal einen*
In the process remembered he$_{Dat}$ PART that he a long time ago once a

*Vortrag vom / $^?$von dem Autor des Romans besucht hatte.*
lecture by-the$_{weak}$ / by the$_{strong}$ author the$_{GEN}$ novel attended had.
'Hans discovered a novel about the Hudson in the library. In the process, he remembered that he had attended a lecture by the author of the novel a long time ago.'

If we assume that both cases involving the overt and covert relatum arguments have the structure in (303) (i.e., assume that the relational noun takes the DP *the novel* or the index as a complement: [*Autor* [des$_{GEN}$ Romans /1]]), the contrast between the two cases is unexpected.

Taken together, these points provide strong evidence against the structure in (303) for covert relatum arguments.[19] An alternative structure would be one that is more

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[19]Further evidence may come from a closer examination of the role that implicit relatum arguments can play more generally. Asudeh (2005) presents a puzzle of why relatum arguments can be bound,

parallel to that proposed above for regular anaphoric strong-article definites, namely one where the anaphoric index for the relatum argument is introduced higher up in the structure, at the level of the DP.

(305)   $[_{DP}$ 1 $[_{D'}$ D NP$]]$

Note that this structure arguably is parallel to that of prenominal possessives.

(306)    a. *sein Bruder*
                his   brother
         b. $[_{DP}$ *sein* $[_{D'}$ ⌀ $_{D}$ *Bruder*$]]$

Interestingly, the prenominal form is obligatory if the possessor is a pronoun, i.e., in such cases, the postnominal alternative is ruled out.

(307)    a.   * der Bruder sein

         b. *der Bruder des      Mannes*
               the brother the$_{GEN}$ man

Furthermore, the prenominal position is restricted to pronouns and proper names.

(308)    a. *Peters Bruder*
               Peter's brother

         b.   * *des      Mannes Bruder*
                  the$_{GEN}$ bother

_____

as in (i), but cannot serve as resumptive pronouns in sentences equivalent to (ii) in languages that allow such structures.

(i)   Every suburbanite knows a neighbor.
(ii)  Every suburbanite who Mary knows that {✓he / *a neighbor} got arrested vanished.

(Asudeh 2005)

Asudeh takes this as evidence against representing relatum arguments as covert pronominal complements.

On the present account, a possible explanation would be that (i) does not actually involve direct binding of the relatum argument, but rather is a larger situation use utilizing the type-shifter Π from chapter 5. Cases like (ii) with a full noun phrase would require a determiner that introduces an anaphoric index for the relatum argument, as on the analysis of the strong article below. Note that such cases should then be possible with the equivalent of *the$_{strong}$* , if there is one in the relevant languages. I am not in a position to test this prediction empirically at the moment.

Both of these points lend support to the idea that relational anaphora and prenominal possessives involve the same structure, since the anaphoric index can be seen as a null pronoun. The only difference between the two cases then would be that in one, the possessive pro-form is overt and the determiner is phonologically null, whereas the reverse holds in the other.

The issue of how the prenominal and postnominal forms are related and how the restriction on the prenominal position can best be accounted for is not settled in the literature (for a recent discussion and review of some of the main arguments, see Hartmann and Zimmermann 2002). With respect to the analysis of relational anaphora, the most plausible assumption is that the anaphoric index is base-generated in the position it appears in in (305), rather than having been moved there (an option that may be worth considering for the pronominal possessive case). The reason is that in order to account for the contrast in (275) based on a difference between the strong and the weak article, the anaphoric index should be interpreted as an argument of the determiner (parallel to anaphoric uses of strong-article definites, but in contrast to cases like (304) with an overt relatum argument).[20]

Assuming the structure in (305), we need an alternative version of the meaning for the strong article, however. In order for the anaphoric index to serve as the relatum argument of the relational noun, the strong article has to combine with the relation denoted by the head noun. The meaning in (309) will yield the desired result.

(309)  $[\![the_{strong\,\langle s,\langle\langle e,est\rangle,\langle e,e\rangle\rangle\rangle}]\!] = \lambda s_r \lambda R.\lambda z.\iota x[R(y)(x)(s_r)\ \&\ y = z]$

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[20]Angelika Kratzer (p.c.) suggests that movement of the index could account for the article-contrast if we assume that it blocks contraction after it has moved. While I find this possibility attractive, in particular in light of the discussion of the relationship between form and meaning in section 6.2.2, I do not see how this structure could be reconciled with the meaning of the strong article that I argue for. In particular, we would seem to face the problem that the anaphoric index introduced by the strong article would have to stand for the author, for which there is no antecedent.

The anaphoric interpretation of a strong-article definite in a bridging use, as in (275), would then come about in the following way.[21]

(275)  *Hans entdeckte in der Bibliothek einen Roman über den Hudson.*
       Hans  discovered  in the library     a      novel   about the Hudson.

       *Dabei          fiel          ihm   ein,   dass er vor langer Zeit einmal einen*
       In the process remembered he$_{Dat}$ PART that  he a long time ago  once    a

       *Vortrag #vom      / von dem     Autor besucht  hatte.*
       lecture  by-the$_{weak}$  / by  the$_{strong}$ author attended had.
       'Hans discovered a novel about the Hudson in the library. In the process, he remembered that he had attended a lecture by the author a long time ago.'

(310)  a.  $[[[the_{strong}\ s_r]\ author\ ]\ 1]$

       b.  $[\![(310a)]\!]^g = \iota x.\mathrm{author}(x)(y)(s_r)\ \&\ y = g(1)$

As I noted in passing before, the uniqueness requirement of the strong article, which does not have much of an effect in anaphoric uses, resurfaces in cases of relational anaphora, as (275) can only be felicitously used if it is assumed that there is a unique author of the novel in question. The present account captures this, as the definite picks out the unique author of the novel that the assignment function $g$ assigns to the index 1.[22]

One question we have to ask in connection with the variant of the strong article in (309) is whether it is stipulative to simply propose two different meanings. Another, related, question is why there should be such a relational variant for the strong article but not for the weak article. In addressing these questions, I would first like to point out that the relational meaning in (309) is not necessarily exotic or

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[21]As far as the situation argument is concerned, the DP *the$_{strong}$ author* here will have to be interpreted relative to the world of the topic situation, which arguably is generally available as a value for situation pronouns. This does not affect the uniqueness requirement as the anaphoric relatum argument ensures the uniqueness of the relevant author (as long as the book in question has a unique author in the world).

[22]Note that, in contrast with this, a standard dynamic approach that assumes definites simply introduce restricted variables would not account for this uniqueness effect with relational anaphora.

unusual. In fact, if one analyzes prenominal possessives in German as having the same structure as the relational anaphora cases, then one could plausibly assume a (phonologically null) determiner with the same relational meaning to mediate the composition of the possessor and the possessee. Furthermore, the meaning in (309) really is just a variant of the simple anaphoric denotation, and not a completely unrelated, alternative meaning: the structure in both cases is the same - all that is changed is that in the relational case, the anaphoric index stands for the relatum argument, rather than the referent of the definite as a whole. As for the absence of a relational variant of the weak article, the fact that it generally does not combine with an anaphoric index makes the possibility of it combining directly with a relational noun mute. A variant of the weak article that combined with a relational noun would render a meaning of type $\langle e, e \rangle$ for the DP as a whole. Such a DP could not play any reasonable role in the composition of a sentence meaning. Having said that, there are more general questions with respect to what other determiners, if any, could plausibly be assumed to have comparable relational variants and how such potential relational and non-relational variants relate to one another, which merit further investigation.

An important aspect of the present proposal for analyzing relational anaphora is that it accounts for the fact that only relational nouns can be used for bridging with the strong article, as seems adequate given the discussion in section 6.1.3. However, it remains to be seen whether the account is too restrictive, i.e., whether the relationality of the noun really is the only way of making relational anaphora uses of strong-article definites possible. To the extent that the data turn out to be not as clear-cut as one might expect on the present analysis, we would have to appeal to the existence of gray areas with respect to whether or not a noun counts as relational, e.g., by allowing for the (presumably limited) possibility of coercing non-relational nouns into relational ones.

### 6.2.4 Covarying Interpretations via Dynamic Binding

Let us now turn to covarying interpretations of strong-article definites. Recall that
we find both regular anaphoric uses as well as relational anaphora with strong-article
definites that receive a covarying interpretation. If we apply the analysis presented
for their anaphoric uses in the preceding sections to examples such as (33) and (62),
we could paraphrase the meanings of these sentences as (33a) and (62a), respectively.

(33) *Jedes Mal, wenn mir bei     einer Gutshausbesichtigung eines der*
Every time when me during a       mansion tour                one    the$_{GEN}$

*Zimmer besonders gefällt, finde ich später heraus, dass eine berühmte*
rooms   especially like     find  I   later    out      that a      famous

*Person eine Nacht #im       / in dem    Zimmer verbracht hat.*
person a     night  in-the$_{weak}$ / in the$_{strong}$ room    spent     has
'Every time when I particularly like one of the rooms during a mansion tour,
I later find out that a famous person spent a night in the room.'

    a. 'Every time I particularly like one room $x$ during a mansion tour, I later
       find out that a famous person once spent a night in the room identical to
       $x$'

(62) *Jeder,    der  einen Roman gekauft hat, hatte schon   einmal eine*
Everyone that a      novel   bought  has  had   already once     a

*Kurzgeschichte #vom      / ✓von dem    Autor gelesen.*
short story       by-the$_{weak}$ / by      the$_{strong}$ author read
'Everyone that bought a novel had already once read a short story by the
author.'

    a. 'Everyone that bought a novel $x$ had once read a short story by the author
       of $x$.'

While the paraphrases are straightforward, their technical implementation is not:
we are paraphrasing as if the index on the definite *the$_{strong}$ room* could be bound by
the the indefinite antecedent. However, this cannot be done via syntactic binding as

it is standardly construed, since the indefinite does not c-command the definite - we are dealing with the classic donkey configuration.[23]

Thus, if we want to analyze the covarying interpretation of strong-article definites in sentences like (62) by means of an anaphoric index on the definite, we will need some mechanism of dynamic binding that allows indefinites in the restrictor of donkey sentences to effectively bind variables in the nuclear scope of the sentence.[24] As mentioned above, this could be done either within the original version of dynamic semantics from Heim (1982). Alternatively, more recent variants, e.g. those proposed by Groenendijk and Stokhof (1991), Chierchia (1995) or Dekker (1994) (among others), could be made use of, which analyze indefinites as existential quantifiers that are able to effectively take scope in the required ways.[25] In the present context, I do not have anything substantive to add to the question of which of these turns out to be the most appropriate, and for the present purposes, the specific choice is not crucial.

The main point of interest, in light of recent theoretical debates, is that we have reached the conclusion that a dynamic binding mechanisms is needed based on data involving the contrast between two types of definite articles and the corresponding definite descriptions. In the past and present debates between description-theoretic (D-type) and dynamic accounts of donkey pronouns, it is primarily the former that appeal to parallels with full definite descriptions (on a uniqueness analysis), since they are based on the idea that pronouns are covert descriptions. Given the contrast between two different types of definite descriptions investigated here, appeal to parallels

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[23]But note that in a recent paper, Barker and Shan (2008) argue that donkey anaphora can be analyzed as involving syntactic binding in a modified theory thereof. Unfortunately, I am not able to discuss their proposal in detail here.

[24]Such a use of the index obviously would be contrary to the general thrust of Elbourne's (2005) proposal, which aims to show that dynamic binding is not needed to account for donkey anaphora.

[25]As mentioned above, the recent proposal by Barker and Shan (2008), which sees donkey anaphora as a case of regular syntactic binding, should be taken into consideration as well.

of pronouns with full definite descriptions alone no longer provides clear evidence in one way or another, for we have to be sure to understand what type of description we are comparing them to. Furthermore, Elbourne's (2005) D-Type account of pronouns explains issues relating to the formal link (discussed in section 6.2.2) by appealing to general properties of NP-ellipsis, which he takes to be at play in pronouns. The fact that we observed anaphoric effects (including ones that resemble the problem of the formal link) with overt definite descriptions suggests that NP-ellipsis may not be the decisive (or at least not the only decisive) factor at play in this respect.

It is also important to note that a dynamic analysis of strong article definites does not affect the independently needed situational uniqueness account of the weak article developed in the preceding chapters. Therefore, the overall picture that emerges is that of a hybrid theory of covarying interpretations of definites in donkey sentences, as we allow both covariation via the situation argument alone (for weak-article definites) as well as via a dynamically bound index argument (for strong article definites).[26]

## 6.3 Strong-Article Definites without Antecedents?

One of the strengths of the account of strong-article definites according to which the strong article takes an additional individual-index argument is that this establishes a direct link between an anaphoric strong-article definite and its antecedent. Such a direct link was central in accounting for the dependence of strong-article definites on an antecedent, as well as the ability to receive a covarying interpretation in donkey sentences, where (even situational) uniqueness alone does not suffice to provide the effect of an anaphoric link. This analysis raises the question, however, whether strong-article definites can be used when there is no (accessible) antecedent. In the literature on pronouns, one key type of example for illustrating the role that

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[26]Note that Chierchia (1995) proposes a similarly hybrid theory for an analysis of donkey pronouns.

indefinite antecedents play for them is that of so-called 'marble-sentences' (going back to Heim 1982, attributed to Barbara Partee).

(311)   a. There were 10 marbles in the bag, but I found only 9 of them. The missing marble / #it must be under the couch.

   b. There were 10 marbles in the bag, and I found all except for one. The missing marble / it must be under the couch.

The presence of an antecedent (in this case *one*) seems to make all the difference for the availability of the pronoun *it*. On the analysis which assumes an index, essentially a covert pronoun, as part of strong-article definites, we might expect that the strong article exhibits the same pattern. However, as was already pointed out by Schwager (2007) for Bavarian, this is not the case: strong-article definites are perfectly acceptable in marble sentences without an explicit antecedent.[27]

(312)   *Wir haben 10 Eier versteckt, aber die Kinder haben erst 9 gefunden.*
   We have 10 eggs hidden  but the kids have only 9 found

   $^?Im$      / *In dem*    *fehlenden Ei* *ist eine Überraschung.*
   in-the$_{weak}$ / in the$_{strong}$ missing  egg is a   surprise
   'We hid 10 eggs, but the kids have only found 9 of them. There's a surprise in the missing egg.'

(313)   *9 der*     *10 Tatverdächtigen sind Rechtshänder.*   *Aufgrund der*
   9 the$_{GEN}$ 10 suspects      are righthanded-people Based on the

   *Schriftanalyse*     *gehen wir davon aus, dass der Drohbrief* $^?vom$     /
   hand-writing analysis assume we        that the threat-letter by-the$_{weak}$ /

   *von dem*    *Linkshänder*     *geschrieben wurde.*
   by the$_{strong}$ lefthanded-person written    was.
   '9 of the 10 suspects are right-handed. Based on the hand-writing analysis we assume that the threatening letter was written by the left-handed person.'

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[27]Schwager does not seem to find the weak article acceptable here. While I have a slight preference for the strong article, the weak article is not ruled out according to my intuition. Angelika Kratzer (p.c.) judges both forms to be perfectly fine in these examples.

Another case to consider in connection with the question of whether strong-article definites require an antecedent are cases like the following, which Roberts (2003) presents in her discussion of the role of antecedents for pronouns.

(314)   Every motel room has a copy of the Bible in it. In this room, it (the bible) was hidden under a pile of TV Guides.

<div align="right">(Roberts 2003)</div>

While there is a preceding indefinite that clearly is relevant for the interpretation of the pronoun (or definite), it is within the scope of a quantifier in the previous sentence and thus is not accessible as an antecedent, even on dynamic accounts. As Schwager (2007) already noted for Bavarian, strong-article definites are perfectly acceptable in such sentences as well.[28]

(315)   *In jedem Zimmer gibt   es ein Gästebuch. Bei   uns im Zimmer sind   #im*
        In every   room        there is a    guest         book By   us  in-the    room are

        */        in dem Buch    einige beeindruckende Zeichnungen.*
        in-the$_{weak}$ / in   the$_{strong}$ book several         impressive      drawings
        'In every room there is a guest book. In our room there are several impressive drawings in the book.'

Both here and in the case of 'marble-sentences', an anaphoric-index account of the strong-article faces a problem with respect to how the value of the index is determined. While it may be possible to allow for a more liberal approach to how the assignment function can be adjusted pragmatically (e.g., by allowing for a broader range of accommodation), such a move would face the danger of losing the restrictiveness that made the anaphoric-index account attractive in the first place.

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[28]Again, Schwager does not seem to find the weak article acceptable in these cases. In the German example in the main text, the description on the anaphoric definite is more general than that in the antecedent, which may be responsible for the infelicity of the weak article, as before in such cases. If the description were identical, however, I would find the weak article reasonably good, though, as in the case of 'marble-sentences', I have a slight preference for the strong article.

Another type of example that I would like to draw attention to in connection with the issue of strong-article definites without an antecedent goes back to Ebert (1971a) and involves a strong-article definite denoting an event that seems to be anaphoric to the event described by a previously occurring verb. Ebert's Fering example is as in (316); the parallel example in (317) makes the same point for German.[29]

(316)     *Förgis juar san ik troch    Persien an   Afghanistan raaiset$_1$. Ik wal   jam*
           last       year am I   through Persia    and Afghanistan   traveled   I   want you

           *fertel, wat    ik üüb det          raais$_1$ ales bilewet      haa.*
           tell      what I   on   the$_{strong}$ trip     all    experienced have

           'I traveled through Persia and Afghanistan last year. I want to tell you what I experienced on the trip.'

                                                               Fering (Ebert 1971a, p. 108)

(317)     *Hans ist gestern    in die Staaten geflogen. #beim      / Bei dem     Flug*
           Hans is   yesterday in the states    flown.      by-the$_{weak}$ / by   the$_{strong}$ flight

           *ging allerdings einiges       schief, so dass er mit   ziemlicher Verspätung*
           went however     several things askew   so   that   he with quite       delay

           *am     Zielort      ankam.*
           at-the destination arrived

           'Hans flew to the States yesterday. However, several things went wrong with the flight, so that he arrived with quite a bit of a delay at the destination.

(318) illustrates a similar point.

(318)     *Als nächstes wurde gesungen. #Im       / In dem     Lied ging es um...*
           As   next       was     sung     In-the$_{weak}$ / in the$_{strong}$ song went it   about

           'Next, we started singing. The song was about...'

---

[29] Again, Angelika Kratzer (p.c.) finds the weak article acceptable in (317). While this variation in judgments is interesting in its own right, the main point for the present discussion is that the strong article is acceptable, and there does not seem to be any variation in judgments in this respect.

To capture these examples, the anaphoric-index analysis of strong-article definites will have to formulate a broader account of the anaphoric relationship between an antecedent and a strong-article definite to verbal antecedents.[30]

A final class of examples where strong-article definites are used without an antecedent are the so-called 'establishing relatives' of Hawkins (1978), illustrated in (319).

(319)   A:  What's wrong with Bill?

      B:  The woman that he went out with last night was mean to him.

<div align="right">(Hawkins 1978)</div>

As we already saw in chapter 2, only the strong article can combine with a restrictive relative clause. Therefore, any establishing relative in German has to be expressed with the strong article.

(320)   *Maria ist #vom       / von dem       Mann, mit  dem   sie gestern*
      Maria is  by-the$_{weak}$ / by  the$_{strong}$ man     with whom she yesterday

      *verabredet war, versetzt  worden.*
      date        had   stood up been

      'Maria was stood up by the man with whom she had a date yesterday.'

On the anaphoric-index account, such cases will have to receive some special treatment, e.g., by assuming accommodation of the relevant individual, perhaps by assigning the relative clause a special role in the process. It will likely be relevant for such an account that, in order to allow for an establishing relative clause use, the relative clause has to have the right kind of content, as was already noted by Hawkins:

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[30]Note that if the weak article is generally unavailable here, this is also puzzling on the account I developed.

> [. . . ] establishing relatives must relate the new, definite referent to some object about which speaker and hearer already share individual, specific knowledge, i.e., this already known object must be locatable in a previous discourse set of referents.
>
> Hawkins (1978, p. 133-134)

While there is no direct anaphoric dependency, we seem to be dealing with a situation that is rather similar to that of relational anaphora, where it is the relatum argument of a relational noun phrase that is interpreted anaphorically.[31]

Generally speaking, the examples in this section pose a challenge to an account of strong-article definites as containing an anaphoric index in that they require a broader notion of how the perceived anaphoric dependencies come about. Simply saying that there has to be an antecedent noun phrase for the strong article is too restrictive. The difficulty in formulating such a more general notion will be to keep it distinct from the requirements of the weak article.[32] Future work will have to determine whether these challenges can be met within (an extension of) the present proposal.

## 6.4 Remaining Issues Concerning the Distribution of the Articles

### 6.4.1 Expected and Observed Overlap in Distribution

While the analysis of the two articles developed so far provides a more or less comprehensive account of their different uses, important issues remain with respect to their full distribution, in particular with respect to their (un)availability in contexts where our account predicts both forms to be possible. In connection with this, we would seem to need a fuller understanding of the relationship between the two forms.

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[31]As Lance Nathan (p.c.) has pointed out to me, it is interesting to note that there also are other areas where relational nouns and relative clauses behave similarly, in particular with respect to concealed questions (Nathan 2006).

[32]It is hard to see, for example, how Roberts's (2003) distinction between weak and strong familiarity can be adjusted to capture the article contrast in light of the examples in this section. For discussion, see Schwager (2007).

Why is it, for example, that the strong article is not available in part-whole bridging and larger situation uses? Recall example (231), from chapter 5, which illustrates the case of larger situation uses.

(231)  *An jedem Bahnhof,    in den    unser Zug einfuhr,    wurde mir ein Brief*
       At  every  train station in which our    train entered into was    I    a    letter

       *vom          / #von dem       Bürgermeister überreicht.*
       from-the$_{weak}$  / by      the$_{strong}$ mayor           handed
       'At every train station that our train entered a letter from the mayor was
       handed to me.'

The analysis of the strong-article definite according to the account we developed above would be as follows:

(321)    a.  [1 [[*the$_{strong}$ s$_r$*] *mayor* ]]

         b.  $[\![(321a)]\!] = \iota x.\text{mayor}(x)(y)(s_r)$ & $y = z_1$

On this analysis, a covarying interpretation of the strong article definite would result if $z_1$ gets bound by *every train station*, and thus should, in principle, be available, contrary to what we observe. For this particular case, one might attribute the unavailability of the strong article to the fact that a mayor is not a mayor of a train station (a point that already played a role in chapter 5). But even if we replace *train station* by *city* (which would arguably turn the example into a case of part-whole bridging, assuming mayors are part of the town they are mayor of, as we did in chapter 5), it is not available for the relevant interpretation:

(231′)  *In jeder Stadt, in der    unser Zug hielt,    wurde mir ein Brief*
        In every city    in which our    train stopped was    I    a    letter

        *vom          / #von dem       Bürgermeister überreicht.*
        from-the$_{weak}$  / from  the$_{strong}$ mayor           handed
        'In every city that our train stopped in a letter from the mayor was handed
        to me.'

An alternative explanation that applies to both of these examples would be to appeal to the additional complexity of strong-article definites as a relevant factor. On the analysis of the strong article in this chapter, it contains an additional element that the weak article does not have. The idea would be that, generally speaking, the weak article is preferred in configurations where both articles are available because of a general pragmatic pressure to choose simpler expressions over more complex ones (e.g., along the lines of the Gricean Maxim of Manner).

However, this would predict that in any situation where both articles should in principle be available (according to the analyses we choose for them), the pattern would be the same, i.e., the weak article should generally be preferred over the strong one. There is at least one class of cases for which this prediction is not borne out, namely that of (potentially) anaphoric cases where the situational uniqueness requirement of the weak article is met.

Consider how the presence of a potential antecedent should affect a weak article definite on our analysis. Even though the weak article lacks the capacity that enables the strong article to be anaphoric to an antecedent, it would still be surprising if the mere presence of a potential antecedent ruled out the weak article as long as the relevant individual is situationally unique. And, indeed, while we have focused on examples involving a (potential) antecedent where the weak article is quite clearly bad to bring out the difference between the two articles, the weak article is by no means generally ruled out in such cases. In the following, quantificational variant of (32), for example, the weak article is at most slightly less good than the strong article.[33]

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[33]In certain types of examples, such as the following, the weak article may even be preferred.

(322) *Jeder Koch, dem **ein Buch** über Topinambur in die Hände fällt, sucht*
Every cook that a book about topinambur in the hands falls looks

***(?)im*** / ***in dem*** **Buch** *nach einer Antwort auf die Frage, ob*
in-the$_{weak}$ / in the$_{strong}$ book for an answer to the question whether

*man Topinambur grillen kann.*
one topinambur grill can.

'Every cook that happens to find a book about topinambur looks in the book for an answer to the question of whether one can grill topinambur.'

But the strong article is certainly available as well (and even slightly preferred according to my intuitions), which is in clear contrast with the larger situation use above. Thus, a general pragmatic pressure to choose the weak article as the simpler form in contexts where both forms should in principle be available can't be the only factor at play, to say the least. Perhaps another relevant aspect is that when there is an antecedent, expressing a direct link with that antecedent explicitly (by using the strong article) could be seen as aiding clarity.[34]

An alternative possibility that would distinguish between part-whole bridging and larger situation uses on the one hand and anaphoric cases on the other is to appeal to the additional semantic contribution of the weak article in the former that was argued for in chapter 5. The point there was that weak-article definites with relational nouns that are interpreted via the situational type-shifter Π directly encode the part-whole

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(1) *Wenn ein Geschäftsmann einen deutschen und einen amerikanischen Anwalt hat, dann*
when a businessman a german and a american lawyer has then
*wird er vor deutschen Gerichten vom / von dem deutschen Anwalt*
is he in german courts by-the$_{weak}$ / by the$_{strong}$ german lawyer
*vertreten.*
represented

'When a businessman has a German and an American lawyer, then he is represented by the German lawyer in German courts.'

I am not sure what factor brings about the slight shift in article preference here.

[34]If this idea turns out to be promising enough to be pursued further, one might want to explore connections with similar issues in the realm of syntactic binding, specifically with Reinhart's 'Coreference Rule' and later variants thereof.

relationship between the referent of the definite and the implicit relatum argument in the semantics. The strong article, on the other hand, combines with relational nouns in a different way, as argued above in the analysis of relational anaphora, which does not encode a part-whole relationship between the two individuals involved. The choice for the weak article thus would be motivated by the additional aspect of meaning it is able to express in part-whole bridging and larger situation uses. Since this difference is not relevant in simple anaphoric cases, the choice of article is more or less optional if the situational uniqueness requirement is met and an antecedent is present.

There likely are other pragmatic factors at play that can affect article choice. One example that seems particularly relevant in this respect is the story about a fisherman (modeled after a Fering example by Ebert (1971a)) in (53), repeated here from chapter 2.

(53)  *In Olersem lebte einmal ein Fischer   mit  seiner Frau und sieben Kindern.*
      In Olersem  lived  once     a    fisherman with his    wife  and seven  children.

      *Jeden Nachmittag gingen die Dorfbewohner zu dem Fischer,  um    Fisch*
      Every afternoon     went    the village people  to the  fisherman PREP fish

      *zu kaufen und den neuesten Tratsch auszutauschen. Auch die Dorfkneipe*
      to buy     and the  newest    gossip    exchange.           Also  the village pub

      *wurde vom   Fischer   täglich mit  frischem Fisch versorgt...*
      was    by-the fisherman daily   with fresh      fish   supplied...
      'In Olersem there once lived a fisherman with his wife and seven children. Every afternoon, the village people went to the fisherman to buy fish and to exchange the newest gossip. The village pub also was supplied daily with fresh fish by the fisherman.'

In this case, the fisherman is first introduced by an indefinite, then picked up by a strong article definite, and then again, in the last sentence, by a weak-article definite. As pointed out by Ebert (1971a), the choice of the weak article seems to be due to the fact that the fisherman is the main character of the story, and thus could

be seen as topical. It will be an important task for future work to relate theories of pragmatic factors in the choice of referential expressions (e.g., proposals within Centering Theory (Grosz et al. 1995), as well as ones based on Gundel et al.'s (1993) Givenness Hierarchy ) to the semantic analysis of the article contrast presented here.

### 6.4.2 Restrictive Relative Clauses

One of the intriguing further differences between the weak and the strong article consisted of a contrast in their ability to combine with a restrictive relative clause, as was shown by (18) in chapter 2.

(18) *Fritz ist jetzt \*im      / in dem      Haus, das  er sich    letztes Jahr*
Fritz is   now  in-the$_{weak}$ / in the$_{strong}$ house that he REFL last     year

*gebaut hat.*
built   has

'Fritz is now in the house that he built last year.'

(Hartmann 1978, p. 77)

This contrast can't be due to the meaning of the noun phrase, as logically equivalent paraphrases with a prenominal participial phrase are perfectly fine with the weak article.

(323)   a. *Fritz ist jetzt \*im      / in dem      Haus, das  er gebaut hat.*
Fritz is   now  in-the$_{weak}$ / in the$_{strong}$ house that he built    has
'Fritz is now in the house that he built.'

   b. *Fritz ist jetzt im       / in dem      von ihm gebauten Haus.*
Fritz is   now  in-the$_{weak}$ / in the$_{strong}$ by   him built     house
'Fritz is now in the house built by him.'

This suggests that the incompatibility of the weak article with a restrictive relative clause has to be accounted for syntactically. But assuming a standard analysis of such constructions, according to which the relative clause is a CP that modifies some level of the nominal projection, as indicated in (324), the contrast remains puzzling.

(324)   $[_{DP}$ D $[_{NP}$ N RC$]]$

To account for the contrast in syntactic terms based on this structure, we would, in effect, have to claim that a determiner, namely the weak article, is able to look inside of its syntactic NP complement and enforce a restriction on its internal structure. This seems undesirable on most syntactic theories.

One possibility for accounting for the article contrast with respect to restrictive relative clauses would be to assume a higher position for the relative, e.g., by treating it as an optional argument of the determiner.[35],[36] One interesting piece of independent evidence for an analysis along these lines comes from data relating to the issue of the effect of intensional adjectives on modifiers, which we discussed in chapter 3 in connection with the problem of the location of the $C$-variable. Recall that if we assumed that a $C$-variable is introduced with the noun (as proposed by Stanley 2002), (130a) and (130c) should be equivalent, which they are not: as was argued in chapter 3, a genuine European philosopher would only count as a counter-example to (130c), but not to (130a).

(130)   a.  Every fake philosopher$_C$ is from Idaho.

b.  $g(C) = \{x | x$ is American$\}$

c.  Every fake American philosopher is from Idaho.

Interestingly, relative clauses seem to behave in exactly the same way in this regard, as (325) is equivalent to (130a) (under the assumption that $C$ is on the determiner).

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[35]Note that such an analysis would be reminiscent of the proposal by Bach and Cooper (1978) for Hittite relative clauses, as well as Larson's (1982) adaptation thereof to Warlpiri.

[36]An alternative possibility, pointed out to me by Rajesh Bhatt, would be to follow Kayne (1994), who proposes that DPs containing a relative clause consist of a D combining with a CP (which contains the head noun). This would allow us to distinguish determiners that combine with CPs with those that combine only with NPs. However, I do not currently see how such an approach would link up with the domain restriction perspective of the strong article, and therefore will not explore this possibility further in the present context.

(325)  Every fake philosopher that is American is from Idaho.

The content of the restrictive relative clause is not understood to be in the scope of *fake*: genuine European philosophers that pretend to be American are not in the domain that we are quantifying over in (325). If the relative clause occupied a higher position within the DP (above *fake*), this would be accounted for straightforwardly.

While I do not have a concrete proposal for an analysis of relative clauses that can account for these observations, future work in this area will have to address these issues: it should at least leave open a possibility for explaining why different determiners should be able to differ with respect to whether they can appear with restrictive relative clauses,[37] and it should also provide some understanding of the contrast in interpretation between pre-nominal modifiers and relative clauses with respect to intensional adjectives.[38]

## 6.5  Summary

Our analysis of the strong article started out by observing that it has an anaphoric capacity that the weak article lacks. This allows it to be used in a number of configurations where the situational uniqueness requirement of the weak article is not met. I developed an analysis that encodes the anaphoricity in a direct way, by incorporating an anaphoric index argument into the meaning of the strong article that can link it to an antecedent. An extension of this account, which includes a relational variant of the

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[37]In this context, it is worth noting that prenominal possessives are also incompatible with restrictive relative clauses. While this has been noted before, as early as Stockwell, Schachter and Partee (1973), I am not aware of any theoretical explanation that has been proposed to account for this.

(i)  a.  John's wealthy brother
     b.  *John's brother who is wealthy (unlike John's brother who is poor)

[38]Angelika Kratzer (p.c.) suggests that the pattern might be more general, namely that all post-nominal modifiers require the strong article. I leave the exploration of this issue for future research.

strong article, was proposed for relational anaphora, where it is the (covert) relatum argument of the noun that receives an anaphoric interpretation. Capturing covarying interpretations, both of regular anaphoric definites as well as relational anaphora, in donkey sentence configurations requires some type of dynamic binding mechanism, since the indefinite antecedent does not bind the strong-article definite syntactically.

The account presented here faces some challenges that still need to be resolved. In particular, we saw some interesting exceptions to the generalization that strong-article definites must have an antecedent. Furthermore, there are open questions concerning the predicted and observed overlap in the distribution of the two articles. While some likely factors involved in article-choice in such cases were mentioned, the full range of pragmatic factors affecting article choice (as well as their potential interactions) will be an important area for future work. Finally, the contrast between the articles in their ability to combine with a restrictive relative clause constitutes yet another challenge that needs to be addressed.

# CHAPTER 7

# CONCLUSION

## 7.1 Directions for Future Work

While this thesis has focused on definite descriptions with the two types of definite articles in German, we have seen connections throughout to related areas that should be investigated more closely in future work in light of the findings presented here. This section lays out some of the directions and issues that I would find particularly interesting to explore.

### 7.1.1 The Typology of Definites

Our discussion of definite descriptions has made reference in various places to phenomena involving other definite noun phrases, in particular pronouns and demonstratives. While the former have been discussed in relation to definite noun phrases for quite some time now, the analysis of demonstratives has only more recently been related directly to definite descriptions (e.g., King 2001, Roberts 2002, Wolter 2006c, Elbourne 2008).

In light of such a perspective that sees the meanings of the various types of definite noun phrases as intimately related, it will be interesting to investigate the implications of the present results for the more general typology of definite noun phrases. As was already noted in passing, proposals that see pronouns as covert descriptions, which typically are framed in a uniqueness analysis, may have to be re-evaluated in light of the German article contrast. In particular, cases where the uniqueness requirement of the relevant description is likely not met, such as in bishop sentences and some of

the other examples discussed in chapter 6, but where pronouns seem to be perfectly fine (patterning with strong-article definites), suggest that pronouns may allow an anaphoric interpretation in donkey configurations, as on a dynamic analysis.

Another question of interest in relation to pronouns is whether there are languages exhibiting contrasts parallel to that between the weak and the strong article in the pronominal realm. As is well known, German actually has two series of pronouns, namely the standard ones *er, sie, es* and what has been called the d-series, which has the same form as the strong article (*der, die, das*). While there is interesting recent work on the difference between these types of pronouns (Bosch, Rozario and Zhao 2003, Bosch et al. 2007), it is not clear at this point whether the contrast between them is the same as that between the two articles investigated here.[1]

The relationship between demonstrative determiners and the strong German article is also an interesting topic for future work. Given the recent work mentioned above that tries to assimilate the meaning of demonstrative determiners to that of definite articles, the substantial overlap in distribution of the strong article in German and English *that* deserves further scrutiny. One particularly relevant observation is that by Abbott (2002), who argues that in many English donkey sentences, a demonstrative description provides a more adequate paraphrase for a pronoun than a definite description. She also presents evidence for a contrast in uniqueness implications between the two cases, as in the following example:

(326)  a.  If someone is in Athens, he is not in Rhodes  (Heim 1982)

       b.   i.  If someone is in Athens, the person in Athens is not in Rhodes.

           ii.  If someone is in Athens, that person is not in Rhodes.

(Abbott 2002)

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[1]Ongoing work reported by Patel, Grosz, Fedorenko and Gibson (2009) suggests that Kutchi Gujurati exhibits a similar contrast between different pronominal forms.

The contrast in (326b), where the definite, but not the demonstrative determiner gives rise to a uniqueness implication, no doubt looks quite parallel to that between the weak and the strong article in German.

Parallels between the German strong article and English *that* raise the more general question of what the full range of cross-linguistic variation with respect to definite noun phrases is. As was noted in chapter 2, there are at least some candidates for non-Germanic languages that exhibit a contrast similar to that between the weak and the strong article, such as Lakhota (Buechel 1939) and Hausa (see Lyons 1999, for an overview). Much work remains to be done to determine the extent to which different article-paradigms within and across languages can vary in their meaning and usage conditions.

In connection with the issue of the cross-linguistic typology of definites, one interesting question is whether the correlation between the contrasts in form and meaning found in the Germanic dialects also holds in other languages, i.e., whether expressions corresponding to the weak article generally can be considered reduced forms of the strong article. Such a correlation may ultimately need to be investigated from a diachronic perspective in order to gain a better understanding of what processes of grammaticalization definite articles in different languages may have undergone, and what variations in meaning might arise from such processes (Lyons 1999, Partee 2005).

Finally, we will need to consider how phenomena involving the two articles relate to languages that don't have any (definite) articles altogether. One possible approach to this issue, which would further support the notion of a correlation between form and meaning, would be to hypothesize that in such languages the weak article is at play as a covert type-shifter, and that (at least a substantial share of) uses requiring the strong article might call for a demonstrative form.

### 7.1.2 Anaphoricity and Domain Restriction

Another area connected to the present investigation concerns the relationship between anaphoric dependencies and domain restriction. $C$-variable accounts generally see domain restriction as a special type of anaphora. While I have argued for a situational approach to domain restriction, it is nonetheless conceivable that anaphoric dependencies, such as the one modeled by the index argument introduced by the strong article, also can play a role in determining the domain of quantification for a quantificational determiner. The apparent contrast in the following set of examples provides suggestive evidence in this direction:

(327)　a.　If three boys beat up three other boys, **every boy** goes home bruised.

　　　　b.　If three boys beat up three other boys, **every one of the boys** goes home bruised.

Most, though not all, speakers that I have consulted understand the first sentence to say that all six boys went home bruised, whereas the second is most readily understood to mean that the three boys that were beaten up went home bruised (though it is also compatible with the first reading). This contrast between *every boy* and *every one of the boys* could be seen as an indication that the former relies entirely on situational domain restriction of the kind argued for here, whereas the latter might include an anaphoric dependency akin to that introduced by the strong article, which would make the prominent reading (which only involves half of the boys from the restrictor) available.

If we assume with Matthewson (2001) that all quantificational noun phrases include a (potentially null) determiner, in addition to the actual quantifier (which is introduced at an additional syntactic level, the Q(uantifier) P(hrase)), this contrast could resemble the one in German quite closely: the weak article then would be present covertly in the first sentence, and the definite article *the* would play the role

of the strong article in the second. Future work will have to determine whether this intriguing, but speculative, proposal withstands further scrutiny.

## 7.2 Conclusion

### 7.2.1 Summary

This thesis has argued that there is a semantic contrast between a weak and a strong definite article in standard German, which is parallel to the contrast between different definite articles in other Germanic dialects (chapter 2). The main line of analysis that I pursued is that the weak article is best characterized as involving uniqueness, whereas the strong article is anaphoric in nature.

In order to provide a detailed uniqueness account of the weak article, I introduced a situation semantics in chapter 3 and argued that it automatically provides an account of domain restriction that is more successful than one based on $C$-variables.

Chapter 4 then provided a detailed analysis of weak-article definites, which focused on the various situations with respect to which they can be evaluated. One important option for this is the topic situation, which I proposed is derived from the Question Under Discussion of the sentence in question. Alternatively, weak-article definites can be interpreted in contextually salient situations or relative to quantificationally bound situations, which results in a covarying interpretation. Special attention was paid to cases where the restrictor of a donkey sentence received a transparent interpretation, as they have not been addressed by existing situational accounts of donkey anaphora.

Next, I turned to larger situation uses, which pose a particularly intriguing challenge from a situation semantic perspective. I argued that there are two independently needed mechanisms that account for the relevant data. In the 'true' larger situation uses, the head noun of the definite is a certain type of relational noun, and a suitable situation semantic type-shifter helps to determine the appropriate larger situation of evaluation. This type-shifter also accounts for cases of part-whole bridging, which

involve the same types of nouns as larger situation uses. Contextually supplied matching functions provide an alternative possibility for bringing about essentially the same effect for nouns that are not relational in the right way, but they, in contrast with the type-shifter, generally require strong contextual support.

Finally, chapter 6 provided an analysis of the anaphoric nature of the strong article. This was done by incorporating an anaphoric index into strong-article definites. In order to account for anaphoric dependencies of the strong article in donkey sentences, we have to utilize some mechanism of dynamic binding. The account was extended to cases of bridging with the strong article from chapter 2 (relational anaphora), which also involve relational nouns, but ones of a different kind (namely ones for which there is no part-whole relationship between the relevant two individuals). These were argued to involve an anaphoric dependency of the relatum argument.

### 7.2.2 Theoretical Desiderata

The investigation of the contrast between the weak and the strong article in German presented here has given rise to implications for various theoretical issues of current interest.

**Different Meanings for Different Definites**

First of all, the new empirical perspective that recognizes two distinct types of definite articles provides reconciliation to the long-standing debate about the proper analysis of definite descriptions. Uniqueness and anaphoricity have distinct roles to play in the analysis of definites in natural language. Some definites, expressed by the weak article in German, rely solely on a uniqueness presupposition (relativized to a situation), whereas others, expressed by the strong article, involve a formally encoded anaphoric dependency.

**Two Mechanisms of Covariation**

For each type of definite, there is a mechanism that brings about covarying interpretations in quantificational contexts, such as in donkey sentences. Quantification over situations can give rise to covarying readings of weak-article definites, and dynamic binding makes covariation possible for strong-article definites. In this realm, too, taking into consideration the two types of definites has shed new light on one of the central debates in current semantic theory. Particularly telling in this regard are bishop sentences, which pose a serious challenge to accounts based on uniqueness alone. The fact that these have to be expressed by the strong article reinforces the thrust of the initial argument that was made based on them, namely that anaphoric dependencies of definites cannot be appropriately modeled by means of uniqueness alone.

**Situations and Domain Restriction**

In developing the analysis of the German definites, a number of points were made that concern more general aspects of our theoretical understanding of natural language semantics, which all relate, in one way or another, to the issue of domain restriction. To begin with, I presented a situation semantic framework that syntactically represents situation pronouns at the level of the DP, and showed that this system does not require a binding theory for situations (Percus 2000, Keshet 2008). The independently motivated situation pronoun was then shown to provide all that we need to account for domain restriction effects, so that no extra mechanisms need to be introduced for these. Furthermore, I showed that the situational account of domain restriction is more successful than one based on $C$-variables, as it avoids several difficult problems that the latter has to confront.

**Topic Situations, Questions Under Discussion, and Discourse Structure**

One crucial question in this situation-based framework is what situations the situation pronouns in DPs can stand for. I presented a detailed proposal that specifies three possibilities for this: the topic situation, a contextually supplied situation, and a quantificationally bound situation. A central ingredient of the analysis was to derive topic situations from questions under discussion, which connects situational domain restriction to discourse structure in a novel way. While more work is needed to explore this connection further, the proposal opens up a promising new perspective on implementing pragmatic constraints on semantic interpretation.

**Relational Nouns and Domain Restriction**

Another important factor affecting domain restriction concerns the lexical properties of the nouns serving as the description of definites. In particular, we saw in various places how relational nouns can help to restrict domains in different ways. With part-whole bridging and larger situation uses of the weak article, discussed in chapter 5, this came about somewhat indirectly, as the situation-semantic version of a type-shifter for relational nouns helped determine the situation in which the definite as a whole wound up being interpreted. In the case of relational anaphora with the strong article, on the other hand, the relatum argument provided an alternative possibility for encoding an anaphoric dependency.

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