Grammatical ingredients of definiteness

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DEDICATION

To Vera Nikolaevna Simonenko, Nikolai Petrovich Korokhov and to the memory of Pëtr Nikolaevich Simonenko and Anfisa Anatol'evna Il'evskaya.

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ABSTRACT

This dissertation presents arguments in favour of an explicit Logical Form representation of components responsible for direct referentiality and domain restriction in definites, with a focus on Austro-Bavarian German, Standard Swedish, and Standard Canadian English.

It provides a semantico-pragmatic analysis of the ban on wh-subextraction out of DPs with the "strong" articles in Austro-Bavarian and demonstratives in English which assumes their direct referentiality. The ungrammaticality of question formation is proposed to result from the pathological uninformativeness of its possible answers. The ban on wh-subextraction thus emerges as a new testing tool for direct referentiality.

I further propose an analysis of the cases where strong articles and demonstratives do not behave directly referentially. Assuming structural decomposition of strong articles and demonstratives into a determiner head and a relational head, I propose that directly referential interpretation results from a silent individual pronoun occupying the specifier of the relational head, whereas covarying interpretations arise as a result of either a restrictive relative clause occupying this position, or else a relational noun functioning as the relational component itself. I proceed to extend this approach to account for the distribution of strong and weak definite articles in DPs with restrictive relative clauses.

In the second part I analyze the pattern of the free-standing article omission in Swedish. I identify the omission with the use of a covert restrictor-less definite article, which accounts for why it is easily available with context-sensitive modifiers whose semantics has to make reference to a domain restrictor, but is limited to the cases of "global uniqueness" with context-insensitive ones. Thus Swedish, I propose, illustrates the case of a "rudimentary" article which, if the only one available, would make the problem of incomplete descriptions unsurmountable. This conclusion relies on, and thus provides evidence for, the unavailability of either domain restriction at the NP-level or implicit global restriction of the domain of individuals as a means of modelling the behaviour of Swedish definites.

ABRÉGÉ

La thèse avance des arguments en support de la représentation explicite des éléments responsables pour la référence directe et pour les restrictions du domaine dans les expressions définies et se base sur les données de l'austro-bavarois, le suédois et l'anglais canadien.

Je propose une analyse sémantique-pragmatique de l'agrammaticalité du mouvement wh des syntagmes nominales avec les articles "fortes" en austro-bavarois et avec les démonstratifs en anglais qui les traite comme directement référentiels. Il est proposé que les réponses possibles à telle question ne portent pas d'information nouvelle, ce qui donne comme le résultat l'agrammaticalité de la question. L'agrammaticalité du mouvement wh devient donc une diagnostique pour la référence directe.

Je propose aussi une analyse des cas où les articles fortes et les démonstratifs ne sont pas directement référentiels. En assumant une décomposition structurelle des articles fortes et des démonstratifs en une tête déterminative et une tête relative, je propose que l'interprétation directement référentielle se produit au cas où un pronom personnel silencieux occupe le spécificateur de la tête relative, tandis que l'interprétation qui admets une covariation se produit au cas où soit une proposition relative occupe le spécificateur en question, soit un nom relatif fonctionne comme une tête relative. J'applique cette analyse à la distribution des articles fortes et faibles dans les syntagmes nominales avec des propositions relatives restrictives.

La seconde partie développe une analyse de l'omission de l'article défini indépendant dans le suédois. Je traite l'omission comme l'usage d'un article défini silencieux qui ne peut pas restreindre le domaine de la quantification, ce qui explique pourquoi elle est possible avec les modificateurs qui fournissent leur propres restrictions contextuelles, tandis qu'elle est possible seulement dans les cas de l'unicité "globale" avec les modificateurs qui ne fournissent pas des restrictions contextuelles. L'analyse met en évidence l'indisponibilité soit de la restriction du domaine sur le niveau nominal, soit de la restriction implicite globale.

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CHAPTER 1
Introduction

The overarching question of this work is whether and how direct referentiality and quantifier domain restrictions should be represented in the object language. The dissertation consists of two parts. Part 1, which is comprised of chapters 2–4, deals with the phenomenon of direct referentiality on the material of strong definite articles in the Austro-Bavarian variety of German. Part 2, which contains chapter 5, is concerned with the positioning of domain restrictors in definites based on the behaviour of Swedish free-standing articles.

The debate over the attributive vs. directly referential nature of descriptions with definite articles is a classic one in the linguistic and philosophical literature. To give a simple illustration of the problem, the definite expression with *the* in the following example can be understood as referring to anyone who happens to be the unique mayor of Montreal at any given point. This would correspond to the so called attributive reading. Else, *the mayor of Montreal* can be taken to refer directly to a particular person who has been elected the mayor of Montreal in 2013, Denis Coderre.

(1) The mayor of Montreal is proactive.

According to a number of classic definitions of direct referentiality, a hallmark of a directly referential expression is that in order to understand an utterance with such an expression, a *de re* knowledge of the reference is needed (Lockwood 1975, Recanati 1988 among many others). In the case at hand, for *the Mayor of Montreal* to qualify as a directly referential expression, it would have to be a prerequisite for interpreting (1) that we have a *de re* knowledge of the individual it denotes at the time of the utterance, namely, Denis Coderre. However, obviously, there are uses of (1) that do not require this knowledge. The question is then whether we have two homophonous definite articles, giving rise to attributive and

directly referential readings. On the view associated with B. Russell's line of thought and developed, in particular, in Kripke (1977), the second reading is a pragmatic "accident", it is a conclusion that the hearer can draw upon hearing (1) and matching it with the actual world facts. Arguments against this approach have been put forth in Kaplan (1970), Stalnaker (1978), who developed different versions of the original insight of K. Donnellan that there is a genuine semantic contrast giving rise to the two readings in (1). After Heim's (1991) refutation of the main arguments in favour of a genuinely directly referential version of the semantics for *the*, the non-directly referential approaches to definite articles have dominated the scene, such as Russellian and Fregean approaches. On the former, a definite article has a quantificational semantics, asserting the uniqueness of an individual having the nominal property. On a Fregean approach, this content is presuppositional, as a simple Fregean version of the semantics of *the* below illustrates.

(2) $\quad [\![D]\!] = \lambda \mathrm{P}_{<e,t>} : |\mathrm{P}| = 1 \ . \ \iota \mathrm{x}[\mathrm{P}(\mathrm{x})]$

Interestingly, arguments in favour of the existence of genuinely directly referential definite articles came up within the boundaries of another classic debate, namely, whether the essential property of definite articles is to pick out an individual which is the only one to have the relevant property in a given domain (i.e. Russellian/Fregean) or whether its semantics is familiarity-based, whereby an article's semantic contribution is to pick up a referent introduced by an anaphoric antecedent (Heim (1982), Groenendijk and Stokhof (1990) and much further work). One of the most recent contributions to the discussion is F. Schwarz's (2009) dissertation, in which the author shows that the evidence from the distribution of the so called weak and strong definite articles in Standard German supports both approaches at the same time. There is a long descriptive tradition, dating back to Heinrichs (1954), which shows that the two paradigms have different distributions. As generalized in F. Schwarz (2009), weak articles appear in nominal expressions referring to a unique individual with the relevant property, while strong articles are used in case

reference is made to a previously mentioned individual. F. Schwarz (2009) shows that adopting a Fregean semantics for the weak articles and a semantics with a built-in anaphora mechanism for the strong ones allows for the best grip on data. Specifically, F. Schwarz's (2009) semantics of strong articles is an adaptation of the proposals of Nunberg (1993) and Elbourne (2008a) for English demonstratives. The line of research of Nunberg (1993) and Elbourne (2008a) models the old insight that understanding reference of directly referential expressions is necessary for understanding the proposition expressed by a sentence via the mechanism of contextually valued pronominal elements. The value of a pronominal element depends on the contextual assignment function, and is thus present at the propositional level. Specifically, for Elbourne (2008a) demonstratives involve a silent individual pronoun whose referent ends up being identified with the denotation of the whole demonstrative expression. Given that this proposal was designed to capture predominantly the directly referential behaviour of demonstratives (exceptions to be discussed shortly), one sees that direct referentiality made its way back into the semantics of German definite articles, this time via anaphora-related phenomena.

In this dissertation I provide novel evidence supporting this development. In part 1 chapter 2 I present an analysis of the ban on wh-subextraction out of strong-e(xtended)NPs in the Austro-Bavarian variety of German, building on the insight about the presence of a silent pronominal element in the semantics of strong articles, in contrast to weak articles. The contrast is illustrated below.

(Context: A visa officer says "Yesterday I checked a single passport picture". A colleague of his replies,)

(3) Vo wem host du [**s** Possbüldl t] gsegn?
of whom have you det_w passport.photo t seen
'Who did you see the passport picture of?'

(Context: A visa officer says "Yesterday I checked a passport picture". A colleague of his replies,)

(4) *Vo wem host du [**des** Possbüldl t] gsegn?
of whom have you det$_s$ passport.photo t seen
Intended: 'Who did you see that passport picture of?'

(adapted from Wiltschko's (2012) citation of Brugger and Prinzhorn (1996:5))

I demonstrate that F. Schwarz's (2009) approach to the semantics of the strong forms, on which they end up being directly referential, explains why only strong-eNPs are islands for wh-subextraction. I match their directly referential semantics with the classic Hamblin/Karttunen semantics of questions, showing that this results in questions which cannot have informative answers. This project fits within a broader enterprise of semantically-driven explanations of wh-island effects (Szabolcsi and Zwarts 1993, Fox and Hackl 2006, Oshima 2007, Abrusán 2008, Abrusán and Spector 2011, B. Schwarz and Shimoyama 2011). One of the major results of this work is that islandhood for wh-extraction can now be seen as an important diagnostics for the identification of directly referential expressions.

The discussion of the ban on wh-subextraction is based on F. Schwarz's (2009) analysis of strong articles, which, along with Elbourne's (2008) treatment of English demonstratives assumes that direct referentiality is "syntactically incarnate" in the form of silent individual pronouns in the LF of strong articles and demonstratives respectively. Although in the Russellian/Donnellan debate demonstratives were left alone as unquestionably directly referential, research focusing on demonstratives as such showed that endowing them with a mechanism which produces only directly referential readings fails to capture a substantial set of data, namely those uses whereby the denotation of expressions with demonstratives covaries with quantifier-bound variables (Neale 1993, Nunberg 1993, Lepore and Ludwig 2000, King 2001, Powell 2001, Elbourne 2008a). Below is one such use from King (2001) which he calls "quantifying in", as it involves a quantifier-bound variable *his eldest child* embedded within a complex demonstrative *that moment when his eldest child leaves home*.

(5) Every father dreads that moment when his eldest child leaves home.

Obviously, this complex demonstrative cannot be considered directly referential since there is no particular individual we have to have a *de re* knowledge of in order to interpret this sentence. Instead, the denotation of *that moment when his eldest child leaves home* covaries with the quantifier-bound variable — for each father's child there is a distinct moment when the child leaves home.

Chapter 3 of my dissertation deals with cases where strong-eNPs in Austro-Bavarian show non-directly referential behaviour, which involves King's (2001) "quantifying in" uses. Instead of taking them as a challenge for the syntactic representation of direct referentiality, I demonstrate that they help us make a case for it. Namely, I show that these uses are made available exclusively in certain syntactic environments, namely, restrictive relative clauses and relational nouns, which points towards a structural analysis of the switch between directly referential, (6), and covarying uses (7).

(Previous discourse: Every year one house on the seaside remains unrented.)

(6) Jedn Somma mietet si da Otto des Haus.
every summer rents himself det_w Otto det_s house
'Every summer Otto rents that house.' (The same particular house every year.)

(Previous discourse: Every year one house on the seaside remains unrented.)

(7) Jedn Somma mietet si da Otto des Haus [wos neamd ondara wü].
every summer rents himself det_w otto det_s house comp nobody else wants
'Every summer Otto rents himself that house that nobody wants.' (Can be a different house every year.)

My proposal builds on Nunberg's (1993) and Elbourne's (2008) work on English demonstratives which isolates a separate object-language component in the structure of demonstratives, responsible for the (non)direct referentiality: a predicate which relates the referent of the silent individual pronoun and the NP-denotation. I propose that the relational component in question is in fact a full-standing functional head R, merged with the nominal projection whenever the conditions on its use can be satisfied. Variation in what syntactically fills the specifier of R, an index or a restrictive relative clauses, corresponds to

the variation in direct referentiality. If R introduces an index, a directly referential interpretation obtains. If this is a restrictive relative clause, the resulting interpretation is non-directly referential. A corresponding schematic LF is given below.

(8) [D [i/RRC $_{RP}$[R $_{RP}$[R NP]]]]

A major result of my investigation is that it is enough to have a single D with a classic Fregean semantics, as long as we admit for the presence of additional structural components in those expressions that *can* behave directly referentially. This approach offers an economical solution to the problem of co-existing paradigms of definite articles (weak and strong articles in German varieties), as well as demonstratives' and certain articles' vacillating between directly referential and non-directly referential patterning.

Chapter 4 extends the results of chapter 3 to explain the distribution of restrictive relative clauses with strong and weak articles in Austro-Bavarian. While in (9) a strong article can and has to be used, a weak article has to be used in (10). Schwarz's (2009) generalization for the distribution of weak and strong articles in Standard German cannot capture this pattern as in neither case is there an anaphoric or deictic antecedent — a prerequisite for the use of the strong article on F. Schwarz's (2009) account.

(Context: A and B are having a discussion about the retirement age of mailmen, and other civil servants. A complains: mailmen and garbage collectors retire way too early. For example...)

(9) dea Briaftroga **dea wos** bei uns austrogn hot is jetz in Pension
det$_s$ mailman det$_s$ comp at us delivered has is now in retirement
'the mailman who delivered mail in our neighborhood is now retired.'

(Austro-Bavarian, Wiltschko (2012:2))

(Context: the mailman who has been delivering mail in the neighborhood for the last 10 years is retired. Everyone knows this mailman. A and B have been living in this neighborhood. A tells B.)

(10) Wasst eh, da Briaftroga ((*dea) **wos** bei uns austrogn hot) is jetz in
Know prt det_w mailman det_s comp at us delivered has is now in
Pension.
retirement
'You know, the mailman (who delivered our mail) is now retired.'

(Austro-Bavarian, Wiltschko (2012:2))

My analysis capitalizes on the observation that strong articles impose an "anti-uniqueness" condition on the denotation of the NP, as (11-b) shows.

(11) a. da hechste Beag
D_w highest mountain
'the highest mountain'

b. #dea hechste Beag
D_s highest mountain
Intended: 'the highest mountain'

Treating the "anti-uniqueness" effect as a presupposition introduced by the LF of strong articles, I predict that an eNP with a strong article will be required in contexts where it is made explicit that there is more than one individual with the nominal property. This expectation is based on the results of the work examining the role of the presuppositional content in the choice of structures, namely that the preference is usually given to a item or a structure with the strongest presupposition (Heim 1991, Sauerland 2003, Percus 2006, Chemla 2008, Alonso-Ovalle et al. 2009). By checking the contexts in (9) and (10) we can see that the expectation is correct.

Part 2 of the dissertation switches gears and focuses on another major question in the discussion of the semantics of definite expressions. Since Barwise and Perry (1983) it has been commonly accepted that a model of quantificational expressions in general and definite expressions in particular has to include some mechanism of domain restriction. It is impossible to model the use of definites unless the uniqueness is asserted (on the Russelian view) or presupposed (on the Fregean view) with respect to some domain much smaller than a world. There is no agreement, however, as to the exact nature of the domain

restriction mechanism, namely, whether it has to be an explicit part of the object-language representation or whether it can be implemented as an implicit (dynamic) restriction on the universe of individuals in the model. It was shown in von Fintel (1994) that the explicit, syntactically tangible, means of domain restriction have to be available in order to capture syntactic interactions between domains of different quantifiers, that is, domain covariation. While in (12) the domain of the eNP with a superlative is fixed (to the students in speaker's school), in (13) the domain of students relevant for calculating the denotation of *the best student* covaries with the domain of classes quantified over by *each class*.

(12) The mayor of our town gave a prize to the best student in our school.

(13) From each class they took the best student.

F. Schwarz (2009) makes the same point for the definite expressions in German. In chapter 5 I show that there are reasons to think that at least in some languages syntactically represented domain restriction is the only option, implicit restriction not being available at all. I draw my conclusions based on the Swedish pattern of the free-standing article omission by showing that the most plausible solution to the distribution of the article omission dictates certain assumptions about the representation mode and placement of domain restriction.

(14) Jag ska ta **(den) största gris-en** till en tävling.
I will take DEN biggest pig-EN to a contest
'I will take the biggest pig to a contest.'

Empirically, the omission is possible in a subset of cases where DEN can be used. I first go through the hypothesis that the possibility of omission depends on the semantics of certain modifiers making the predicate denote uniquely across evaluation points. I then show that such a hypothesis requires otherwise unwarranted assumptions about adjectival semantics, I propose to treat the omission cases as involving a silent Fregean article without domain restriction. As a consequence, the silent definite article requires the NP-extension itself to

denote a singleton, without further restriction by a domain restrictor introduced by the article. Thus the analysis captures the fact that DEN-omission is a subset of the cases of the use of DEN — because the uniqueness requirement that is not restricted to a domain smaller than a world rarely holds. It makes a strong point in favour of representing domain restrictions syntactically. In addition, chapter 5 makes a contribution to the debate about where exactly object-language domain restrictors should be placed within the extended nominal projection. I show that the Swedish data are only compatible with the placement of restriction at the D-level, and not at the N or NP-level (Westerståhl 1985, von Fintel 1994, Martí 2003, F. Schwarz (2009) contra Stanley and Gendler Szabó 2000, Stanley 2002).

Part I

Reflexes of direct referentiality: Austro-Bavarian

CHAPTER 2
Semantics of the eNP-island

2.1 Introduction

This chapter is concerned with the role that the understanding of the semantics of definite articles plays for the analysis of DP-island effects. It brings in a new sort of evidence confirming the proposal of Elbourne (2008a) for English and F. Schwarz (2009) for German that the semantics of the so called "strong" articles and demonstratives differs qualitatively from that of "weak" articles and *the* in that the former involves a pronominal element which makes the corresponding e(xtended)NP directly referential.

Specifically, this chapter provides a semantic-pragmatic analysis of the ban on wh-subextraction out of a certain type of eNP. Austro-Bavarian German features two distinct definite articles which contrast with respect to the wh-subextraction ban. Namely, wh-subextraction is possible out of a weak-eNP in (1), but leads to ungrammaticality in (2).

(Context: A visa officer says "Yesterday I checked a single passport picture". A colleague of his replies,)

(1) Vo wem host du [**s** Possbüldl t] gsegn?
of whom have you det_w passport.photo t seen
'Who did you see the passport picture of?'

(Context: A visa officer says "Yesterday I checked a passport picture". A colleague of his replies,)

(2) *Vo wem host du [**des** Possbüldl t] gsegn?
of whom have you det_s passport.photo t seen

Intended: 'Who did you see that passport picture of?'

(adapted from Wiltschko's (2012) citation of Brugger and Prinzhorn (1996:5))[1]

I show that the locus of the contrast is the interaction of the semantics of the definite article with requirements pragmatically imposed on the set of possible answers to the question. I demonstrate that subextraction out of directly referential eNPs results in questions whose answers cannot serve to update the inquirer's state of knowledge: both the asserted and the presuppositional contents of the possible answers to such questions have to be part of the inquirer's knowledge prior to uttering the question. I propose that questions with what I call zero information-seeking potential are ungrammatical, unlike rhetorical and biased questions, which, although not updating the inquirer's state of knowledge in some contexts, can serve this purpose in others.

There have been proposals to account for the contrast in terms of the syntactic status (head vs. phrasal) of the definite marker involved, such as Giusti (1997) for Italian. My analysis, which differentiates between "kinds" of definiteness, building on Elbourne's (2008) and F. Schwarz's (2009) work, can provide an independently grounded semantic explanation for the contrast. This project aligns with a number of recents studies of constraints on movement whereby such constraints are analyzed as stemming from semantic-pragmatic constraints on question formation (Szabolcsi and Zwarts 1993, Fox and Hackl 2006, Oshima 2007, Abrusán 2008, Abrusán and Spector 2011, B. Schwarz and Shimoyama 2011), rather than from syntactic factors.

The analysis proposed in this chapter can be extended onto a number of other languages which feature eNPs contrasting with respect to the wh-subextraction possibilities, in particular, onto English, French, Italian, Komi, and Russian where demonstrative-eNPs are wh-subextraction islands. Islandhood with respect to wh-subextraction thus emerges as a

[1] The original example contained negation, which I removed as it does not affect the grammaticality judgements but makes presentation more cumbersome.

new diagnostic for direct referentiality. Although this work focuses on wh-subextraction in questions, the results seem promising for the analysis of some other cases of problematic operator-trace dependencies, such as restrictive relative clauses with a relativization site embedded within certain eNPs, as in the example below. I discuss these briefly in 5.7.

(3) a. I saw the guy John showed me **a** picture of.

b. *I saw the guy John showed me **that** picture of.

2.2 The problem of wh-island eNPs

The topic examined in this chapter is part of the investigation of the nature of constraints on wh-trace dependencies which began in a systematic fashion with Ross (1967) and since then generated voluminous literature. In particular, it was observed that it is impossible to establish a wh-trace dependency in case the trace is embedded within certain eNPs. An example below illustrates one such island effect, specifically, the ban on wh-subextraction out of a subject eNP.

(4) *Of which car_1 did [the driver t_1] cause a scandal? (Chomsky 2008:146)

This contrasts with the grammatical wh-subextraction out of an object eNP in (5).

(5) Of which car_1 did they find [the driver t_1]? (Chomsky 2008:146)

While the literature on wh-island eNPs is too vast to be reviewed here, it needs to be pointed out that the contrast between examples such as English (4) and (5), where the most noticeable difference is the syntactic position of the eNP-of-extraction, biases the debate about the nature of island phenomena towards syntactic explanations. It received relatively less attention that certain object eNPs can also be wh-islands, which makes a syntactic position-based account a less straightforward option.

That some semantic property is relevant for the analysis of wh-subextraction was suggested in Fiengo and Higginbotham (1981: 402) for object eNP cases, who discussed the following pair (but see the discussion below regarding different judgements on (6-b)).

(6) a. Who did you see [pictures of]?

b. *Who did you see [**the** picture of]?

The contrast at issue in Fiengo and Higginbotham (1981) was the island behaviour of definite object eNP and lack of such behaviour with indefinite object eNP. This singled out definiteness as the relevant notion for the explanation of eNP islandhood (Manzini 1998, Radford 2004 a.o.). For instance, Jiménez-Fernández (2012) proposes that the feature [definite] makes eNP a phase out of which the wh-element cannot move.

However, already Erteschik-Shir (1973) (and also Fiengo 1987) noticed a "graded" character of the unacceptability of (6-b), pointing out that it sounded better than, for instance, *Who did you see [his picture of]?* It seems that the reason for the perceived unacceptability of (6-b) is not the impossibility of wh-subextraction out of an eNP headed by *the* as such, but rather a failure to provide a context which would satisfy the uniqueness condition on the use of *the*. According to the native speakers' judgements I gathered, wh-subextraction is acceptable in the scenario where there is only one picture of each person in the relevant domain, in contrast to scenarios involving more than one picture of each person.

(7) Who did you show me [the picture of t]? (Uttered in the context where there can be just one passport picture for every relevant individual)

On the other hand, wh-subextraction out of *that*-eNP is strictly ungrammatical in any context.

(8) *Who did you show me [that picture of t]?

The fact that definite object eNPs in English contrast with respect to wh-subextraction makes an analysis which relies simply on the feature [definite], which partitions eNPs into definite and indefinite ones, less plausible. With recent work on the semantic mechanisms behind various types of demonstratives and definite articles (King 2001, Elbourne 2008a, F. Schwarz 2009), it becomes increasingly clear that what used to be known as "definite" eNPs is in fact a cover term for elements with heterogenous semantic properties. This chapter is concerned with the wh-subextraction ban out of object eNPs in Austro-Bavarian variety of German, which features two paradigms of definite articles with distinct semantic properties. In what follows I derive the wh-island effect which characterizes eNPs headed by one of the articles from the semantics of the article involved and its influence on question formation. I show that the semantics of the article which heads the offending eNPs interacts with wh-subextraction in such a way as to make a question unusable.

In the next two sections I introduce the Autro-Bavarian strong and weak article paradigms and provide more examples of the contrast in wh-subextraction in Austro-Bavarian as well as in a number of other languages. This will be followed in 2.5 by the discussion of the articles' semantics based on the proposal of F. Schwarz (2009) for Standard German. Then I will proceed to the analysis of the interaction of articles' semantics with the semantics of questions in 2.7.

2.3 Weak and strong definite articles in German varieties

A number of varieties of German distinguish between two types of definite articles, the "weak" and the "strong" series. The discussion of the realization of the two paradigms in Standard German can be found in F. Schwarz (2009) (and references therein). Morphophonologically, the weak article of the Standard dialect contracts with a preposition, in contrast to the strong one: *am* 'at.the' vs. *an dem* 'at the', *aufs* ('on.the') vs. *auf das* 'on the' etc. In this dissertation I focus on the Austro-Bavarian variety, which, unlike Standard German, distinguishes between the two series also in Subject and Direct Object

positions (Scheutz 1988, Wiltschko 2012). The Austro-Bavarian paradigms below, distinguishing NOMINATIVE, ACCUSATIVE and DATIVE cases, as well as MASCULINE, FEMININE and NEUTER genders, are based on Wiltschko (2012:6).

Table 2–1: Austro-Bavarian strong definite article

	M.SG	F.SG	N.SG	M.PL	F.PL	N.PL
NOM	dea	die	des	die	die	die
ACC	den	die	des	die	die	die
DAT	dem	dea	dem	dea	dea	dea

Table 2–2: Austro-Bavarian weak definite article

	M.SG	F.SG	N.SG	M.PL	F.PL	N.PL
NOM	da	d	(i)s	d	d	d
ACC	(i)n	d	(i)s	d	d	d
DAT	(i)m	da	(i)m	da	da	da

Throughout this chapter I refer to nominal expressions headed by strong and weak articles as strong-eNPs and weak-eNPs respectively.

According to the generalizations made in F. Schwarz (2009) for Standard German and Wiltschko (2012) for Austro-Bavarian, descriptively, a strong article is used in contexts where the eNP in question has an anaphoric or deictic antecedent, as in (9) and (10).

(9) In da Stodtbücherei gibt 's a Buach über Kanada. Letzens woa I doat und
in det_w townlibrary exists it a book about Canada recently was I there and
hob ma #**s**/**des** Buach ausboagt.
have me det_w/det_s book borrowed
'In the public library, they have a book about Canada. Recently, I was there and borrowed that book.' (Wiltschko's (2012:9) adaption from F. Schwarz (2009:24))

(Context: A points to a house (the only one in the immediate surrounding) and asks B,)

(10) Gfoit da #s'/des Haus?
like you det_w/det_s house
'Do you like this house?'

A weak article is used whenever it is part of the common ground that the eNP has only one possible referent in a given situation, as in (11).

(11) Wie geht 's 'n **da**/***dea** Frau?
how goes it prt det_w/det_s woman
'How is your wife doing?' (Wiltschko 2012:7)

2.4 Wh-subextraction ban

2.4.1 Wh-subextraction ban in Austro-Bavarian

One additional difference between the two types of articles is whether they tolerate wh-subextraction out of their eNPs. It was noticed in Brugger and Prinzhorn (1996) that the weak article allows for wh-subextraction, (12), whereas the strong one does not, (13).

(Context: A visa officer says "Yesterday I checked a single passport picture". A colleague of his replies,)

(12) Vo wem host du [**s** Possbüldl t] gsegn?
of whom have you det_w passport.photo t seen
'Who did you see the passport picture of?'

(Context: A visa officer says "Yesterday I checked a passport picture". A colleague of his replies,)

(13) *Vo wem host du [**des** Possbüldl t] gsegn?
of whom have you det_s passport.photo t seen
Intended: 'Who did you see that passport picture of?' (adapted from Wiltschko's (2012) citation of Brugger and Prinzhorn (1996:5))[2]

[2] The original example contained negation, which I removed as it does not affect the grammaticality judgements but makes presentation more cumbersome.

To be sure, in the same contexts the following sentences without wh-subextraction are fine, meaning that the relevant offending factor in (13) is indeed wh-subextraction, and not the mere presence of a strong article.

(Context: A visa officer says "Yesterday I checked the only passport picture of Peter". A colleague of his replies,)

(14) I hob [s Possbüldl von Peta] scho ogschaut.
I have **det**$_w$ passport.picture of Peter already looked.at
'I have already looked at the passport picture of Peter.'

(Context: A visa officer says "Yesterday I got to see a passport picture of Peter". A colleague of his replies,)

(15) I hob [des Possbüldl von Peta] scho ogschaut.
I have **det**$_s$ passport.picture of Peter already looked.at
'I have already looked at that passport picture of Peter.'

Examples below illustrate the contrast in wh-subextraction further.

(Context: Hans' mom wrote a story about each of Hans' stuffed animals: Peter, Elsa, and Otto. Hans read one story. Hans' dad asks Hans mom,)

(16) Über wen hot da Hons [d Gschicht t] glesn?
about who has det$_w$ Hans det$_w$ story t read
'Who did Hans read the story about?'

(Context: Hans' mom told Hans' dad that the kid read a story she wrote about a stuffed animal. Hans' dad asks her,)

(17) *Über wen hot da Hons [die Gschicht t] glesn?
about who has det$_w$ Hans det$_s$ story t read
Intended: 'Who did Hans read that story about?'

Examples in (18) and (19) are declarative controls for (16) and (17) respectively.

(Context: Little Hans read three stories — about Peter, Elsa, and Otto. His dad says,)

(18) I mecht a gean d' Gschicht üban Peta lesn.
I would also like det$_w$ story about Peter read

'I would also like to read the story about Peter.'

(Context: Hans' mom told Hans' dad that the kid read a story she wrote about a stuffed animal, Peter the squirrel. Hans' dad tells her,)

(19) I mecht a gean die Gschicht üban Peta lesn.
I would also like det_s story about Peter read
'I would also like to read that story about Peter.'

Below is another pair of questions illustrating the same contrast. Again, only the strong article makes wh-subextraction impossible.

(Context: In a family with several children that go to the primary school, mom asks dad, who had a meeting with the teacher of one of the children,)

(20) Von wöchem Kind host ['n Lehra t] troffn?
of which child have det_w teacher t met
'Which child did you meet the teacher of?'

(Context: In a family with several children that go to the middle school, mom asks dad, who had a meeting with a teacher of Hans,)

(21) *Von wöchem Kind host [den Lehra t] troffn?
of which child have det_s teacher t met
Intended: 'Which child did you meet that teacher of?'

In the next section I use the existing independent knowledge about the semantics of these articles to probe into the nature of the contrast in question. But before I move on to the analysis, I will briefly present some data showing that the contrast in wh-subextraction out of definite object eNPs is by no means restricted to German, or even languages with *bona fide* definite articles.

2.4.2 Wh-subextraction in other languages

Giusti (1997: 111) gives the following Italian contrast, where an eNP with a definite article permits wh-subextraction, while an eNP with a demonstrative does not.

(22) a. Di chi hai [**la** foto t] sulla tua scrivania?
of whom have.2SG the picture t on.the your desk
"Who do you have the picture of on your desk?"

b. *Di chi hai [**questa** foto t] sulla tua scrivania?
of whom have.2SG this picture t on.the your desk
Intended: '*Who do you have this picture of on your desk?' (Giusti (1997: 111), with adaptations in translation)

In Giusti (1997) the contrast in the grammaticality of wh-subextraction is given a syntactic analysis, namely, as stemming from the phrasal nature of the demonstrative versus the head nature of the definite article. Alexiadou et al. (2007:107) conclude from these examples that "definiteness as such should not be taken as the factor blocking extraction." The syntactic analysis, however, would need to be supported by some independent evidence showing that Italian demonstratives do indeed have a phrasal status. The semantic analysis I am about to present capitalizes on an independently proposed semantic difference.

Russian manifests a contrasts in wh-subextraction between bare eNPs and eNPs with a demonstrative.

(23) a. Kak-ogo rebenk-a ty vide-l [fotografi-ju t] v gazet-e?
which-GEN child-GEN you see-PST picture-ACC t in newspaper-PRP
'Which child did you see a/the picture of in the newspaper?'

b. *Kak-ogo rebenk-a ty vide-l [et-u fotografi-ju t] v
which-GEN child-GEN you see-PST that-ACC picture-ACC t in
gazet-e?
newspaper-PRP
Intended: '*Which child did you see this picture of in the newspaper?' (Russian)

We find eNPs contrasting with respect to the wh-extraction possibilities beyond Indo-European as well, as the following examples from Komi Izhem (Finno-Ugric) show.[3]

[3] Thanks to Maksim Kudrinski for sharing these data with me.

(24) a. [Kutšə čeljad'-lys' fotografia-se] addil-in gazeta-as?
which child-GEN photo-ACC.3SG see-PST.2SG newspaper-ESS.3SG
'Which child did you see the picture of in the newspaper?'

b. *[Etaje kutšə čeljad'-lys' fotografia-se] addil-in gazeta-as?
this which child-GEN photo-ACC.3SG see-PST.2SG newspaper-ESS.3SG
Intended: '*Which child did you see this picture of in the newspaper?' (Komi Izhem)

In view of these data, whichever analysis is given to the contrast between weak and strong articles in Austro-Bavarian and *the* and demonstratives in English has a good chance of being relevant cross-linguistically, and, possibly, used as a diagnostic tool for the semantic type of the article involved.

In what follows I lay out a semantic-pragmatic account of the wh-subextraction contrast between strong and weak eNPs capitalizing on the fact that they have different distribution elsewhere, which independently necessitates different semantics for the two articles.

I first discuss the semantics of weak and strong articles as proposed by F. Schwarz (2009) to account for differences in their distribution other than the wh-subextraction pattern, whereby the former are essentially "classic" Fregean definites, whereas the latter are directly referential. It is the direct referentiality that will become the centrepiece of the analysis to follow. Then I proceed to the semantic composition of a question with wh-subextraction out of a strong-eNP, before getting to the discussion of the general principles of questions' interaction with the Common Ground and the mechanics of my account.

To give a preview of the results, I propose that wh-subextraction out of a strong-eNP results in a question which cannot be asked in order to seek any new information. The central insight is that a directly referential eNP denotes a particular individual independently of the interpretation of the wh-trace, which makes the quantification introduced by the wh-word vacuous. This, in turn, leads to all possible answers asserting exactly the same and what is already entailed by the Common Ground.

2.5 The semantics of the articles: F. Schwarz (2009)

Concerning the use of the two articles in Standard German, F. Schwarz (2009: 69) comments that

> *"the weak article is not generally able to pick up a linguistic antecedent, whereas the strong article generally depends on such an antecedent. 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".* F. Schwarz (2009:69)

According to Wiltschko (2012), this generalization largely captures the distribution of articles in Austro-Bavarian as well.[4]

F. Schwarz (2009) essentially proposes a classic Fregean treatment for the weak article, supplemented with a machinery of domain restrictions, which results in picking out a unique individual with a relevant property within a relevant domain. In contrast, the semantic contribution of the strong articles amounts to picking out an individual identical to an already-mentioned one. To capture this, the LF of the strong article is proposed to involve a silent individual pronoun.

Before I proceed to the technical details of F. Schwarz's (2009) proposal, a few framework-related remarks are in order. F. Schwarz (2009) implements his analysis of German articles in the situation semantics framework of Kratzer (1989). This is a version of intensional semantics whereby nominal predicates, in particular, denote functions from situations (parts of possible worlds) to sets of individuals. Importantly, articles also have a situation argument slot in their denotation, which provides a way to model the domain restriction phenomena associated with the use of definite descriptions. F. Schwarz's (2009) LF of the

[4] According to F. Schwarz (2009) and Wiltschko (2012), both in Standard German and in Austro-Bavarian the weak article is used with generic eNPs and with the so called "weak definite" eNPs (similar to the use of English *the* in *They want to take Peter to the hospital* where no particular hospital is meant). I do not consider those in this dissertation.

weak article is given below, where s_r is a silent situation pronoun, which fills the situation argument.[5]

(25) [[D_w s_r] NP] (F. Schwarz 2009)

The weak article denotes a function which takes a situation argument s, a function from situations to properties of individuals P (denotation of a noun), and, if defined, returns a unique individual with the property P in the situation s. The function is defined in case there exists a unique individual with P in s.

(26) $[\![D_w]\!] = \lambda s\ .\ \lambda P_{<s,<e,t>>} : \exists!x[P(x)(s)]\ .\ \iota x[P(x)(s)]$

The strong article, crucially, has an "enriched" LF compared to (25) in that it also includes a silent individual pronoun (here it bears the index 1).

(27) [1 [[D_s s_r] NP]] (F. Schwarz 2009)

The function denoted by the strong article has an additional argument compared to the denotation of the weak one. It takes a situation s, a function from situations to properties of individuals P, an individual y, and, in case there exists exactly one individual with the property P in the situation s which is identical to y, returns such an individual. The individual argument y is filled by the value of the silent individual pronoun. The "role" of the strong article is thus to make its eNP denote the same individual as the one picked out by the index.

(28) $[\![D_s]\!] = \lambda s\ .\ \lambda P_{<s,<e,t>>}\ .\ \lambda y : \exists!x[P(x)(s)\ \&\ x = y]\ .\ \iota x[P(x)(s)\ \&\ x = y]$

[5] Subscript "r" stands for "resource situation pronoun", to distinguish a situation pronoun adjoined to D from other situation pronouns in the structure.

Notice that the identity requirement x = y in the presupposition renders the uniqueness condition vacuous, since there is necessarily only one element identical to y. And because for any P and individual y for which the function in (28) is defined its output is always y, (28) is equivalent to the following function.

(29) $[\![D_s]\!] = \lambda \mathrm{s} \ . \ \lambda \mathrm{P}_{<s,<e,t>>} \ . \ \lambda \mathrm{y} : \mathrm{P(s)(y)} \ . \ \mathrm{y}$

It has been a common assumption for quite a while now that the semantics that involves the use of quantifiers to represent the behaviour of natural language expressions has to be supplied with mechanisms of restricting domains of quantification (Westerståhl 1985, Kratzer 1989, Heim 1991, von Fintel 1994). The main reason is that given natural language data, quantification only seldom needs to apply to the whole universe of entities associated with a given model. Arguably, one advantage of representing domain restriction mechanisms in the grammar proper, as it is done in the situation semantics framework, is that this allows one to deal easily with cases where a domain of quantification covaries with a quantifier-bound variable. For instance, (30) can be understood in the sense that each summer Otto rents whatever house remains vacant on that particular summer. That is, the domain of quantification associated with the object eNP covaries with the variable in the restrictor of the universal quantifier. We can capture this by having an object-language situation variable at the D-level bound the universal quantifier *every summer*.

(30) Every summer Otto rents [the-s only available house on the sea].

This reading corresponds to the following denotation for (30).

(31) $\forall$s[s is a summer $\rightarrow$ Otto rents in s the only available house on the sea in s]

In a purely pragmatic account of domain restrictions something would need to be said about how to make the domain of *the only available house on the sea* match exactly intervals quantified over by *every summer*, that is, situations that extend over summers.

All this becomes relevant precisely in cases when the semantics of an expression crucially involves a domain restrictor.[6] As will be demonstrated below, this is not the case with strong-eNPs, which, by default, manifest "scopelessness" (using the term of Heim 2004) in that they are exempt from the action of operators. In fact, the whole analysis of the wh-subextraction ban with strong-eNPs is going to be constructed upon this premise. Since this chapter is chiefly concerned with eNPs of this sort, in order to simplify the discussion I omit the situational aspect of F. Schwarz's (2009) model (undeniably a crucial one for the treatment of weak-eNPs and of Fregean definites in general, as chapter 5 shows). All intensional quantification, when needed, will be done by means of the classic possible world semantics. This means that for the purposes of this chapter I will take the following to be the denotation of the Austro-Bavarian weak article. This is a "textbook" version of a definite whereby it denotes a function which takes a property and, if defined (i.e. if the property holds of exactly one individual), returns an unique individual with the property in question.

(32) $\llbracket D_w \rrbracket = \lambda \mathrm{P}_{<e,t>} : \exists!\mathrm{x}[\mathrm{P}(\mathrm{x})] \ . \ \iota\mathrm{x}[\mathrm{P}(\mathrm{x})]$

Accordingly, after removing the situation component, the following function corresponds to the denotation of the strong article.

(33) $\llbracket D_s \rrbracket = \lambda \mathrm{P}_{<e,t>} \ . \ \lambda \mathrm{y} : \mathrm{P}(\mathrm{y}) \ . \ \mathrm{y}$

While F. Schwarz's (2009) formalization of the strong article semantics in (28) is meant to highlight its similarity to the function denoted by the weak article, for this chapter I opt for the most transparent formula. That is, for the analysis of the ban on wh-subextraction I use the function in (33) as the denotation of the strong article for the ease of exposition.

[6] Domain restrictors at the D-level will become pivotal for the analysis of the free-standing article omission in Swedish in chapter 5.

The proposal I develop below is that the ban on wh-subextraction, characteristic of strong-eNPs, arises as a result of the interaction of the semantics of the strong article with the principles of pragmatic well-formedness of questions. The crucial property of a strong article is that it makes $[\![i\ D_s\ NP]\!]^g$, if defined, be identical to a particular individual g(i).

In the next section I look at the semantics of wh-subextraction out of a strong-eNP, given the semantics of the strong article we have just reviewed.

2.6 Semantics of wh-subextraction out of strong-eNP

The basic intuition I pursue in this chapter is that the semantic differences between the weak and strong articles, which account for the difference in their distribution, are also responsible for the contrast in wh-subextraction. To that end, I look in detail at how the semantics of articles interacts with the interpretation of questions. I assume that the semantics of questions involves two main ingredients: the semantics of the question word and the semantics of its complement (roughly, TP). I first discuss the contribution of the strong article to the interpretation of the TP, and then show why such a TP cannot be part of a grammatical question.

Let us go through a tentative interpretation of the Austro-Bavarian example in (34), repeated from (13), assuming for *des* the semantics of the strong article in (33).

(34) *Vo wem host du [**des** Possbild t] gsegn?
of whom have you det_s passport.photo t seen
Intended: '*Who did you see that passport picture of?' (Brugger and Prinzhorn (1996:5) cited from Wiltschko (2012))

Given the LF in (27) (minus the situation pronoun), a question with a strong-eNP has the following LF.[7]

[7] Both in English and in Austro-Bavarian I assume that the preposition *vo(n)/of* is semantically vacuous. It therefore does not make a semantic difference whether the preposition is stranded, as in English, or carried along with the wh-word, as in Austro-Bavarian.

(35) who λ_1 $_{TP}$[have you seen [2 [des passport picture of t_1]]]

Let us focus for a moment on the semantics of the strong-eNP alone. Assuming the semantics of the strong article in (36), repeated from (33), in the case at hand the strong article-function takes a nominal property, $[\![picture\ of\ t_1]\!]$, and an individual, g(2), and returns g(2), provided its definedness conditions are satisfied. The latter amounts to the requirement that g(2) be a passport picture of g(1).

(36) $[\![D_s]\!] = \lambda \mathrm{P}_{<e,t>}\ .\ \lambda \mathrm{y} : \mathrm{P(y)}\ .\ \mathrm{y}$

(37) $[\![2\ des\ picture\ of\ t_1]\!]^{g,w}$ is defined iff g(2) is a passport picture of g(1) in w
if defined, $[\![2\ des\ picture\ of\ t_1]\!]^{g,w} = \mathrm{g(2)}$

Before we get to the denotation of the whole TP, a note is in order about my assumptions concerning what happens to presuppositions of subconstituents when it comes to the interpretation of larger expressions. Following Heim and Kratzer (1998), I assume that the rules of semantic composition are sensitive to definedness conditions of the functions they apply to. In the case of composition by the rule of Functional Application, definedness conditions of subconstituents become definedness conditions of larger expressions. This is reflected in the following "pedantic" version of the compositional operation of Functional Application from Heim and Kratzer (1998:105). I add a world parameter to the interpretation function.

(38) **Functional Application ("pedantic")**. If α is a branching node and $\{\beta, \gamma\}$ the set of its daughters, then, for any assignment a, α is in the domain of $[\![\ ]\!]^{w,a}$ if both β and γ are, and $[\![\beta]\!]^{w,a}$ is a function whose domain contains $[\![\gamma]\!]^{w,a}$. In this case, $[\![\alpha]\!]^{w,a} = [\![\beta]\!]^{w,a}([\![\gamma]\!]^{w,a})$.

Also, here and throughout the dissertation, I use English words in LF and semantic formulae for the clarity of exposition.

Here we are concerned with the interpretation of the VP node which dominates the verbal predicate and the direct object eNP.[8] Compositionally, the interpretation of VP involves the function denoted by the verbal predicate applying to the denotation of the object, eNP $[\![2\ \textit{des picture of}\ t_1]\!]^g$. By (38), given an assignment g, VP is in the domain of $[\![\ ]\!]^g$ just in case both *have seen* and *2 des picture of* t_1 are. By definition, a necessary condition in order for an expression to be in the domain of $[\![\ ]\!]^g$ is that its presuppositions be met. This means that for *2 des picture of* t_1 to be in the domain of $[\![\ ]\!]^g$, g(2) has to be a passport picture of g(1). Now, VP is in the domain of $[\![\ ]\!]^g$ in case g(2) is a passport picture of g(1). That is, the presupposition of the object eNP which involves a presupposition with a variable becomes a presupposition of the whole VP. As commonly done, I represent presuppositions as definedness conditions on the function denoted by a given expression.

Let us assume that as a result of movement, the wh-phrase becomes a sister to TP, which results in lambda-abstraction over the wh-trace. In this case the definedness conditions of subconstituents (e.g. of the strong-eNP) turn into conditions on elements in the domain of the function derived by the lambda-abstraction. This is a "pedantic" version of Predicate Abstraction, Heim and Kratzer (1998:125). Again, I add a world parameter.

(39) **Predicate Abstraction ("pedantic")**. If α is a branching node whose daughters are β_i and γ, where β is a relative pronoun or "such", and i$\in\mathbb{N}$, then for any variable assignment a, $[\![\alpha]\!]^{w,a} = \lambda x : x\in D \text{ and } \gamma \text{ is in the domain of } [\![\ ]\!]^{w,a} .\ [\![\gamma]\!]^{a^{x/i},w}$

As we have just established, the TP-node is in the domain of $[\![\ ]\!]^g$ just in case g(2) is a passport picture of g(1). By (39), this condition has to be satisfied in order for the lambda-abstract to be in the domain $[\![\ ]\!]^g$. That is, skipping the step of combining VP with the subject eNP (also by FA in (38)), the presupposition introduced by the strong-eNP that

[8] As is common in LF representations, I use a non-articulated version of the syntactic structure, indicating only major constituents.

g(2) is a passport picture of g(1) turns into a restriction on the domain of the function denoted by the complement to the wh-word, as shown below.

(40) $[\![\lambda_1$ *you have seen* [2 *des picture of* $t_1]]\!]^{g,w} =$

$=$ λx : in w, g(2) is a passport picture of x . the hearer has seen g(2) in w

As a denotation of TP, we obtain a function which, if defined, maps an individual to truth in case the hearer has seen the picture g(2). The domain of this function is restricted by the presupposition of the strong-eNP: it includes only those individuals of whom g(2) is a passport picture.[9]

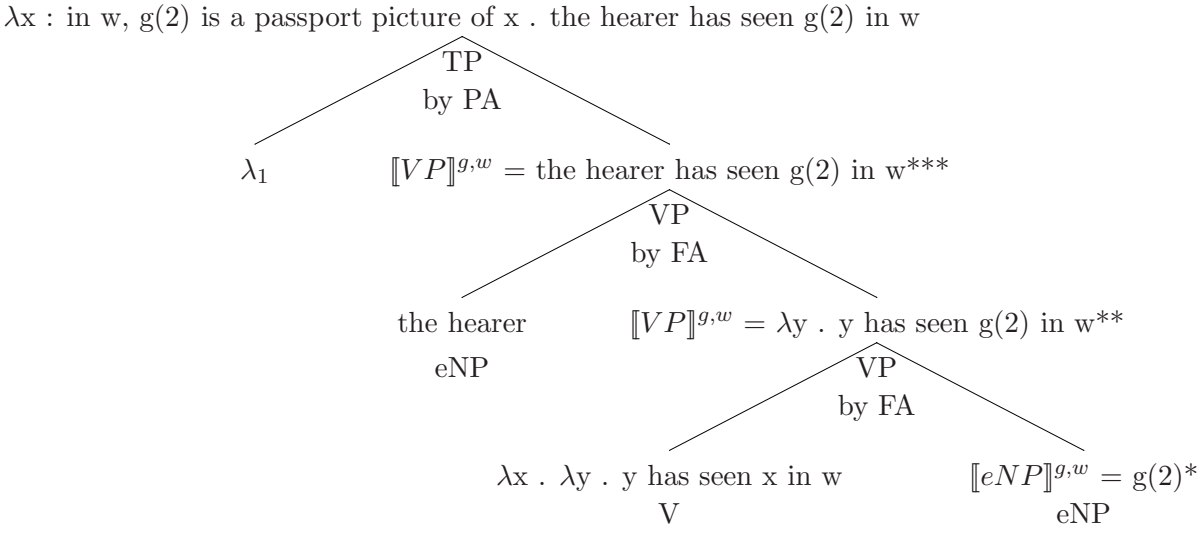

Figure 2–1: Semantic composition of the TP in a question

*eNP is in the domain of $[\![\ ]\!]^{g,w}$ iff g(2) is a passport picture of g(1) in w

** VP is in the domain of $[\![\ ]\!]^{g,w}$ iff g(2) is a passport picture of g(1) in w

***VP is in the domain of $[\![\ ]\!]^{g,w}$ iff g(2) is a passport picture of g(1) in w

Notice that relative to any given possible world, if defined, this is a constant function. In a world where it is true that the hearer of the utterance has seen g(2), *all* individuals

[9] I ignore the T-node to simply the presentation.

in the domain of the function (that is, all those for whom it is true that g(2) is a passport picture of them) are going to be mapped onto truth. And in worlds where it is not true that the hearer of the utterance has seen g(2), *all* individuals in the domain of the function are going to be mapped onto falsity. In what follows I argue that a grammatical question cannot be formed based on a function that is constant relative to a given world. A question has to be formed based on a function with a variable output in a given world, this is what makes it a question. Such variability, that is, that some individuals do and some do not satisfy the function denoted by the lambda-abstract over TP in a given world, is absent in the case of wh-subextraction out of strong-eNP. To see exactly why, let us consider what it takes to form a question.

2.7 Semantics of questions

I assume a version of the semantics of questions of Karttunen (1977), whereby a wh-word such as *what* or *who* denotes a function from open propositions (denotation of the complement of the wh-word, our lambda-abstract over TP) to a function from worlds to sets of propositions. Each proposition in this set corresponds to the function denoted by the complement of the wh-word with its argument slot filled by some entity from the domain of the wh-word. The following is an adaptation of Karttunen's (1977) wh-semantics following B. Schwarz (2013).[10]

(41) $[\![who]\!] = \lambda \mathrm{f}_{<s,<e,t>>}$. λw . {p: $\exists$x$\in \mathrm{D}_e$[x is a person in w & p = λw′ . f(w′)(x)]}

[10] In Karttunen's (1977) original version the answer-set contained only *true* answers. In addition, the original version involves formation of a proto-question, a singleton set containing an (open) proposition corresponding to denotation of TP. The proto-question then serves as an argument to the wh-function. The original version was designed to accommodate cases of multiple wh-words. Since I am not concerned with those here, a simplified version in (41) is enough for the present purposes.

Let us see how this works for the case at hand. I assume that $[\![who]\!]$ combines with the denotation of its complement by the intensional version of Function Application spelled out in Heim and Kratzer (1998:308) is given below in an amended "pedantic" version, which makes sure that the domain of the intensional argument is restricted to the worlds where the predicate has a denotation. We obtain the following extension of the question in a world w where there are three individuals, Hans, Elsa, and Otto, in the domain of the wh-word. I repeat the denotation of the lambda-abstract over TP below.

(42) **Intensional Functional Application**. If α is a branching node and $\{\beta, \gamma\}$ the set of its daughters, then, for any possible world w and any assignment a, if $[\![\beta]\!]^{w,a}$ is a function whose domain contains λw′ : γ is in the domain of $[\![\ ]\!]^{w',a}$. $[\![\gamma]\!]^{w',a}$, then $[\![\alpha]\!]^{w,a} = [\![\beta]\!]^{w,a}(\lambda$w′ . $[\![\gamma]\!]^{w',a})$.

(43) $[\![\lambda_1$ *you have seen* [2 *des picture* t_1]$]\!]^{g,w} = \lambda$x : in w, g(2) is a passport picture of x . the hearer has seen g(2) in w

The set of propositions corresponding to the extension of the question in a world w where there are three individuals, Hans, Elsa, and Otto, in the domain of the *wh*-word, is as follows,

(44) $[\![who]\!]^g(43)$ = {p: ∃x∈{Hans, Elsa, Otto}[p = λw′ : in w′, g(2) is a passport picture of x . the hearer has seen g(2) in w′]}

or, spelling out each proposition separately,

(45) $[\![who]\!]^g(43)$ = {[λw′ : in w′, g(2) is a passport picture of Hans . the hearer has seen g(2) in w′], [λw′ : in w′, g(2) is a passport picture of Elsa . the hearer has seen g(2) in w′], [λw′ : in w′, g(2) is a passport picture of Otto . the hearer has seen g(2) in w′]}

Answer-propositions in (45) differ only in the presupposition associated with each of them, whereas their asserted content is identical. In other words, these propositions differ only in what is required to be presupposed by the conversation participants, whereas otherwise they are identical. Intuitively, it seems that possible answers to a question should differ precisely in what is not yet presupposed. Why did we end up with such possible answers? This is so because the individuals from the domain of the wh-word make no semantic contribution to the asserted content of answer-propositions. Whatever value is assigned to t_1 when interpreting the object eNP *2 des passport picture of* t_1, the eNP ends up denoting the individual g(2); and *2 des passport picture of Hans*, *2 des passport picture of Elsa*, and *2 des passport picture of Otto* pick out the same individual — g(2). So, again, because the wh-bound variable is embedded within a strong-eNP whose denotation resists covariation, the asserted content of answer-propositions remains constant, creating a situation where all possible answers, if at all assertable, are identical. There is evidently something wrong with a question to which all assertable answers are identical.[11]

How can this intuition be related to the theory of questions in general? Namely, what exactly is wrong with a question all possible answers to which are identical in what they assert? The following discussion consists of two parts. First, I argue that the asserted content of the answers gets presupposed by such a question. I show that the effect of this presupposition is that such a question can only be asked felicitously against a Common Ground which already entails the asserted content of the answers. Second, I demonstrate that accommodation of the presuppositional content of the answers cannot be a source

[11] One might object to this claim by pointing out examples such as *Who cannot prove that 2 plus 2 is 5?* or *Who is not identical to himself?*, which are also based on functions that map all the individuals for which they are defined to the same truth value in a given world. As was suggested to me by Florian Schwarz (p.c.), this may be related to the distinction between two types of triviality discussed in Gajewski (2002): "accidental" or lexical choice based and L-analytic, dependent on the functional structure of the sentence. The connection remains to be worked out.

of new information either, because inquirers cannot introduce presuppositions they are ignorant about. The conclusion is that questions such as the one at hand have zero potential (that is, given any Common Ground) to update the inquirer's state of knowledge.

2.7.1 The "existential" presupposition of questions

Let us take another look at the Austro-Bavarian wh-subextraction examples, repeated from (1) and (2).

(46) a. Vo wem host du [**s** Possbüldl t] gsegn?
of whom have you det_w passport.photo t seen
'Who did you see the passport picture of?'

b. *Vo wem host du [**des** Possbüldl t] gsegn?
of whom have you det_s passport.photo t seen
Inteded: 'Who did you see that passport picture of?' (adapted from Wiltschko's (2012) citation of Brugger and Prinzhorn (1996:5))

Informally speaking, when asking the *who*-question in (46-a), the point of departure for the inquirer is that the hearer has seen someone's picture. That is, the question of whether some picture has been seen or not seems not to be at issue in this case. Following up on this intuition, Horn (1972) and Karttunen (1977), among others, assumed that questions carry something resembling an existential presupposition. A wh-question of the form *wh* TP seems to presuppose $\exists x[[\![TP]\!](x) = 1]$, that is, that there exists an individual which has the property denoted by the lambda-abstract over TP.

First, consider the following dataset from Abusch (2010) pointing towards the presuppositional status of the relevant existential proposition. The embedded question's existential presupposition *someone took Mary's bike* projects in (47-b) through negation and the predicate *clear*. The latter happens to be a presupposition hole, as (47-c) shows.

(47) a. Who took Mary's bike?

b. It isn't clear who took Mary's bike. (projection of an embedded question presupposition)

c. It isn't clear that it is Jenny who took Mary's bike. (projection of a cleft presupposition)

At the same time, with respect to this alleged existential presupposition, questions do not pass all the presupposition tests that, for instance, cleft constructions do. Namely, this presupposition is still defeasible, as (48), from Groenendijk and Stokhof (1984), suggests. While a question such as *Who will vote for me?* seems to presuppose that someone will vote for the speaker, the following exchange shows that this statement can be negated.

(48) a. Who on earth will vote for me?

b. Nobody will.

The same is true for Austro-Bavarian.

(Context: A and B are organizing their soccer team to go abroad for championship. All team members are required to have new passport pictures. A and B are responsible for ensuring that they really have them done.)

(49) a. Du, von wem host denn du eigentlich s' Possbüldl gsegn?
you of whom have prt you actually det_w passport.picture seen
'Who did you see the passport picture of?"

b. Vo neamd.
of nobody
"Of nobody."

Instead of denying the presence of an existential presupposition in questions altogether, negative answers to wh-questions such as the one in (49-a) have been taken to convey that the presupposition is not met, as in Dayal (1996:122), Mayr (To appear).

The defeasibility of the purported existential presupposition generated a discussion in the literature about the status of this presupposition: is it an immediate component of the semantic representation of a question or should it be derived in a roundabout way as a consequence of a question's semantic architecture? I follow Abusch (2010) who takes

the latter stance, arguing that such defeasible presuppositions are generated every time we deal with a grammatical object whose semantics makes reference to a set of alternatives. The presence of such a set in the semantic representation triggers a default presupposition that a proposition corresponding to the disjunction of the propositions in the alternative set is true. This creates the effect of an existential presupposition: if all that is required is that some alternative be true in the set of alternatives {*Peter took Mary's bike, Sam took Mary's bike, George took Mary's bike*}, it is the same as requiring that a proposition of the form *someone took Mary's bike* be true. In the case of question semantics this requirement amounts to the requirement that one proposition in the set of answer-propositions be true. One advantage of this approach is that it generalizes onto all kinds of alternative set-triggering operators and, specifically, onto all sorts of question-words. If we decided to associate this presupposition directly with the denotation of a question-word, this would necessitate reference to it in the lexical entry of each separate question-word. For the current account, however, nothing major hinges on how the existential presupposition arises.

The existential presupposition generated by a question is an implicit part of the analyses of wh-island effects which rely on Dayal's (1996) principle of the existence of a maximally true answer, such as Fox and Hackl (2006), Oshima (2007), Abrusán (2008), Abrusán and Spector (2011), and B. Schwarz and Shimoyama (2011). The requirement that there exist a maximally true answer entails that there must exist a true answer, which is the same as the existential presupposition in Abusch's (2010) sense.

Let us look from this perspective at the ungrammatical question in (46-b). The requirement that there be a true answer is satisfied in case the following two propositions hold.

(50) a. λw . $\exists$x$\in${Hans, Elsa, Otto}[in w, g(2) is a passport picture of x]

b. λw . the hearer has seen g(2) in w

The first proposition corresponds to the existential closure of the presuppositions of possible answers to (46-b): for at least one answer to be true, the function denoted by at least one answer has to be defined. An answer-function such as [λw : in w, g(2) is a passport picture of Hans . the hearer has seen g(2) in w] is defined only for worlds of which the proposition [λ w . in w, g(2) is a passport picture of Hans] holds. The second proposition corresponds to the requirement that the asserted content of at least one of the answers be true. Recall that all possible answers to the question we consider assert the same, that *the hearer has seen g(2)*.

How does the presupposition in (50) relate to the felicity conditions on the use of the question in (46-b)? I will make use of Stalnaker's (1974) notion of a "context set" as a set of possible worlds c where all the propositions believed to be true by conversation participants, and which form the Common Ground, are true. According to von Fintel (2008: 4), who develops the insight of Stalnaker (1973) about "bridging" semantic well-formedness and pragmatic felicity, it is an "irreducible property of natural language" that an utterance is felicitous only in case the function it denotes is defined in all the context set worlds. I assume that Stalnaker's bridging principle is extendable onto cases of "floating" presuppositions, namely those that do not correspond to definedness conditions of a particular function, such as Abusch's (2010) presupposition associated with alternative sets. This means that for an expression associated with an alternative set, such as a question, to be felicitously uttered the corresponding existential presupposition has to be true in the worlds of the context set. In our specific case, in order for the question in (46-b) to be asked felicitously, (50-a) and (50-b) have to be true in all the worlds in the context set, or, equivalently, it has to be entailed by the Common Ground. The net result is that the question in (46-b) can be felicitously asked only when we know already the assertive part of its possible answers, by (50-a), and also that for some individual in the set consisting of Hans, Elsa, and Otto it is true that g(2) is a passport picture of that individual, by (50-b).

Putting this in more general terms, we have arrived at the conclusion that a question with wh-subextraction out of a strong-eNP can be felicitously asked only in a Common Ground that entails its assertable true answer or answers. Obviously, a question with such felicity conditions is a useless question. Specifically, what makes it ungrammatical, I argue, is that this conflict between felicity conditions and some cooperativeness principle such as a version of Grice's (1975) informativeness maxim, of the kind "don't ask a question when no answer will provide you with new information", is going to arise in any Common Ground. Either the question is infelicitous because the Common Ground does not satisfy the existential presupposition, (50), or it is infelicitous because satisfaction of (50) violates a cooperativeness principle. I will refer to the relevant cooperativeness principle as the Question information-seeking potential. I propose that a question has a zero information-seeking potential when no proposition in its denotation can change the inquirer's state of knowledge in any Common Ground.

As observed by Barwise and Cooper (1981), utterances whose asserted content is part of what is required to be part of the Common Ground for the utterance to be felicitous sound odd. The general effect that they discuss is that expressions which involve existential quantification as part of their presuppositional content cannot be used in existential statements. For instance, it is odd to use a proper name in (51): proper names are a type of definite expressions presupposing the existence of the individual they denote, and the use of a proper name in an existential statement gives rise to a tautology (if it is an affirmative statement; in the case of negation we obtain a contradiction). In other words, (51) is true if and only if John exists, but this is what *John* presupposes.

(51) #There is John. (In the existential, not the locative sense.)[12] Barwise and Cooper (1981:183)

[12] As Barwise and Cooper (1981) note, such statements are acceptable in the contexts of "list" readings, such as *Q: Who can help around here? A: There is John the Plumber and*

A more severe pathology are the cases where the presupposition asymmetrically entails the asserted content, as in the example below.

(52) #There are both students.

Here the presupposed content (there are exactly two students) asymmetrically entails the (tautological) asserted proposition (every student exists). More generally, these cases go against the definition of an asserted proposition as "true in some but not all of the possible worlds in the context set", Stalnaker (1978:88–89). The propositions expressed by (51)–(52) are true in all worlds in the context set where they have a truth value.

2.7.2 The presuppositions of the answers

It seems that we could stop at this in the account of the wh-subextraction ban out of strong-eNPs. However, a possible objection to the claim that a question which gives rise to answers with identical asserted content entailed by the Common Ground has zero information-seeking potential is that the informational import of an answer might be in its presuppositional part. It is well known that conversation participants are able to accommodate presuppositions (at least since Stalnaker (1973), Karttunen (1974)). In the case at hand one could say that updating of the Common Ground can be achieved not by virtue of adding the asserted content of an answer as such, but a) either by virtue of accommodating the existential presupposition of the question or b) by virtue of accommodating the presuppositional content of the answers.

We can rule out the first option right away since what it means is that it is not part of the Common Ground that there is a true answer to the question. But, according to Abusch (2010), an expression associated with a set of alternatives automatically makes it part of

Bill the Handyman. It seems that in these cases it is always possible to add something like *as you know/remember*.

the Common Ground that one of the alternatives is true. That is, it does not depend on the state of knowledge of a particular inquirer and/or addressee.

The second option, namely, updating the Common Ground with the presupposition of the answers, requires some more discussion. I will first consider evidence that forcing accommodation as a way of answering questions is in general an infelicitous strategy. I will then make an even stronger point demonstrating that questions in fact presuppose all of their answers' presuppositions, which rules out the accommodation strategy entirely.

Simons et al. (2011:319) note, considering question-answer exchanges below, that "attempts to answer questions using presuppositions or conventional implicatures are typically infelicitous".

(53) a. Q1: Are there any boys in your class?

b. A1: #I (don't) like the boys in my class.

(54) a. Q2: What's the weather like?

b. A2: #Bob realizes/doesn't realize that it's raining.

In our case this means that answering a question with the following LF *Who did you like 2 that picture of* t_1*?* with the proposition λw *: in w, g(2) is a picture of John . I saw g(2)*, which carries the presupposition that g(2) is a picture of John, would be infelicitous. Below I will show that this is not the only, and perhaps not even the main argument for why accommodation of an answer's presupposition is not possible. Another argument for why it is implausible that answers to a question can update the inquirer's state of knowledge by virtue of their presuppositional content has to do with the general principles of interaction of the presuppositional content of the answers and the state of knowledge of conversation participants. The main intuition is that the inquirer is responsible for introducing the presuppositional content of answer-propositions denoted by the question. Therefore the inquirer is bound to have the relevant knowledge, which, in turn, rules out entirely the possibility of updating *the inquirer's* knowledge by accommodation. I will propose that the

presuppositional content of all possible answers becomes a presupposition of the question itself. I will start with cases where possible answers all have the same presuppositional content, and then discuss more complex, but also more relevant cases where possible answers have different presuppositional content.

To begin with, the presupposition introduced by a presupposition trigger in a subconstituent of a question, such as a definite nominal expression embedded in TP, obviously, ends up as a presupposition of the answer-propositions. For instance, possible answers to the following question presuppose the existence of the unique king of France.

(55) Did you meet the king of France in Paris?

Now, imagine that a given Common Ground does not entail this presupposition. Is there any chance the relevant presupposition can be accommodated, just as it happens in the case of declaratives? From looking at (56) and (57), the answer appears to be positive, as B apparently learns that Peter used to take music lessons both from the declarative sentence and from the question.

(56) a. A: Peter stopped taking music lessons.

b. B: I see, I didn't know Peter was taking music lessons. [✓ addressee accommodation]

(57) a. A: Did Peter stop taking music lessons?

b. B: I didn't know Peter was taking music lessons. [✓ addressee accommodation]

It can be concluded from (57) that the presupposition of the possible answers becomes a presupposition of the question itself, which can be then accommodated by the addressee. But what is crucial for the current discussion is that the accommodation can happen only on the side of the person to whom the question is addressed, as the infelicity of the following exchange shows, where A supposedly is not aware of the fact that Peter used to be taking music lessons.

(58) a. A: Did Peter stop taking music lessons?

b. B: Yes, he did.

c. A: #I see, I didn't know Peter was taking music lessons. [⊗ inquirer accommodation]

Given that the presupposition of answer-propositions has to be part of the information that A has, A cannot possibly ask a question in order to seek this information. To put it differently, it appears to be a deviant conversation strategy to introduce a presupposition (i.e. mark something as part of the Common Ground) without knowing whether it is indeed part of the Common Ground, only in order to see whether the addressee plays along or objects to a presupposition failure.

I thus make a rather obvious conclusion that the question's presupposition projected from its possible answers cannot change the inquirer's set of knowledge – the inquirer himself introduces that presupposition. But this is not the end of the story yet, since above we have looked only at answer sets where all answers share the same presupposition (introduced by *the* and by *stop* in (55) and (57) respectively). Questions with wh-subextraction out of strong-eNP, however, are more complex in that answer-propositions have different presuppositional content. The question is then whether these presuppositions project existentially or universally. In the former case it is conceivable that a particular answer will update the inquirer's state of knowledge, since its presupposition will not be entailed by the presupposition of the question itself. In the latter case any accommodation option by the inquirer is ruled out as the presuppositional content of all possible answers will be entailed by what the question presupposes. In the remainder of this section I show that the interaction of the presuppositional content of the answers with the Common Ground goes beyond a simple existential projection onto the level of the existential presupposition associated with a question, and that in fact the presuppositions of the answers project universally.

From looking at the examples below we can conclude that presuppositions of all answers have to hold in order for a question to be felicitous. For instance, in the case of (59), it

has to be part of the Common Ground that all individuals in the relevant domain actually have a hat, by virtue of the definedness condition on the function denoted by an eNP with a Saxon genitive that there exists a unique individual with the nominal property which belongs to the possessor.

(59) Among Peter, Bill, and Sam, whose hat do you like best?

(60) Speaking of Peter, Bill, and Sam, who of the three are you glad passed the test?

(61) Speaking of Peter, Bill, and Sam, who stopped taking music lessons?

Possible answers to (59) are *I like Peter's hat*, *I like Bill's hat*, and *I like Sam's hat*. These answers presuppose that Peter has a hat, Bill has a hat, and Sam has a hat, respectively. It is strange to ask this question with regard to Peter, Bill, and Sam if only the former two have a hat, while Sam does not.

In the case of (60) the possible answers are *I am glad that Peter passed the test*, *I am glad that Bill passed the test*, and *I am glad that Sam passed the test*, which presuppose, respectively, that Peter passed the test, Bill passed the test, and that Sam passed the test. Unless it is part of the Common Ground that all three actually passed the test, it seems, again, strange to ask such a question.[13]

In (61), the possible answers are *Peter stopped taking music lessons*, *Bill stopped taking music lessons*, and *Sam stopped taking music lessons*, all of which presuppose that their respective protagonists have been taking music lessons up to a certain point. That is, we need the presuppositions of all the answers to be entailed by a given Common Ground

[13] As was pointed to me by Michael Wagner, it seems to be possible to ask, when pointing to a group of 20 people not all of whom wear hats, *Of those people, whose hat do you like best?*. At this point I have no explanation for why the number of people in the range of the wh-word makes a difference.

in order for a question to be felicitous in that Common Ground.[14] To be sure, these presuppositions have to be part of the information that the inquirer has, as in the case of the addressee they can be accommodated. Consider parallels to (56)–(58) for the case of answers with different presuppositions.

(62) a. A: Peter, Bill, and Sam stopped taking music lessons.

b. B: I see, I didn't know Peter was taking music lessons. [✓ addressee accommodation]

(63) a. A: Speaking of Peter, Sam, and Bill, who stopped taking music lessons?

b. B: I didn't know Peter/Sam/Bill was taking music lessons. [✓ addressee accommodation]

Once again, it makes for a very bizarre exchange if the inquirer introduced a presupposition which he did not know to hold.

(64) a. A: Speaking of Peter, Sam, and Bill, who stopped taking music lessons?

b. B: Peter did.

c. A: #I see, I didn't know Peter/Sam/Bill was taking music lessons. [⊗ inquirer accommodation]

Getting back to wh-subextraction out of strong-eNP, for the question in (65) to be felicitous in a given Common Ground, the following propositions have to hold: *that g(2) is a passport*

[14] In itself this is not a very surprising result, as the universal projection of answers' presuppositions is predicted, for instance, on the approach of Schlenker (2008) to presupposition projection.

picture of Hans, *that g(2) is a passport picture of Elsa*, and *that g(2) is a passport picture of Otto*.[15]

(65) $[\![who]\!]^g(43)$ is defined iff ∀x∈{Hans, Elsa, Otto}[g(2) is a passport picture of x]
if defined, $[\![who]\!]^g(43)$ = {[λw′ : in w′, g(2) is a passport picture of Hans . the hearer has seen g(2) in w′], [λw′ : in w′, g(2) is a passport picture of Elsa . the hearer has seen g(2) in w′], [λw′ : in w′, g(2) is a passport picture of Otto . the hearer has seen g(2) in w′]}

While the addressee can still be ignorant about the presuppositional content and simply ready to accommodate it, the inquirer cannot be ignorant about a presupposition that he introduces. This rules out the possibility that answers in (65) can be informative for the inquirer by virtue of their presuppositional content, namely that the inquirer can ask such a question in order to seek any new information.

To take stock, neither the "existential" presupposition of a question in (65), not the presuppositional content of its possible answers can provide new information for the inquirer by the mechanism of accommodation. This means that a felicitously uttered question of this kind can in no way update the inquirer's state of knowledge. Before definitively concluding that this is indeed what makes wh-subextraction out of strong-eNPs bad, three other kinds of questions that are seemingly pathological in a similar way need to be discussed, namely rhetorical and biased questions, as well as certain questions formed by wh-extraction out of a complement of a factive predicate. First, I show that my account can correctly distinguish

[15] Note that in this particular case there is an additional potential source of infelicity, namely that the universal projection of the presuppositions of the answers entails that g(2) is a passport picture of all three, which is pragmatically implausible. However, this cannot be the main source of infelicity as wh-subextraction is still ungrammatical if 'passport picture' is replaced with 'picture' or with a different noun altogether, as the examples in section 2.4.1 illustrate.

between "accidental" uninformativeness of rhetorical questions and across-the-board uninformativeness of questions with strong-eNPs. Second, I discuss a problem of compatibility between my results and Guerzoni's (2003) analysis of negatively biased questions. Finally, I show that the prediction made by my analysis makes an accurate prediction for the case of factive predicate islands.

2.8 Testing the analysis on other question types

The conclusion reached in the previous section is that the questions generated by wh-subextraction out of strong-eNPs are ungrammatical because their possible answers are utterly uninformative for the inquirer, asserted and presuppositional content alike, in the sense that no possible answer to such a question can provide new information for the inquirer in any Common Ground. Thus, we can formulate the following simple prediction: a question which can be felicitously uttered only in a Common Ground that entails its possible answers should be ungrammatical.

2.8.1 Rhetorical questions

Let us consider rhetorical questions, which come to mind first when talking about "useless" questions. It has been proposed in Caponigro and Sprouse (2007) that rhetorical questions are syntactically and semantically identical to ordinary questions, the difference coming only from pragmatics. A question is understood as rhetorical if it is uttered in a Common Ground which entails the true answer. A question is understood as an ordinary question if its true answer does not belong to the set of propositions believed to be true by the inquirer. In other words, for a question to be an ordinary question the inquirer must not know the answer and must believe that the hearer does. However, in its semantic architecture a rhetorical question is just like an ordinary one and unlike a question formed based on wh-subextraction out of a strong-eNP in that it is not part of its felicity conditions that the Common Ground has to entail the content of its answers. In other words, a rhetorical question does not have a zero information-seeking potential, it is simply a regular question

uttered in a specific Common Ground. The same question can be felicitously uttered in a Common Ground which does not entail its true answer. The grammaticality of rhetorical questions thus aligns with the prediction made by my analysis.

2.8.2 Biased questions

Negatively biased questions seem to be closer to our case in that, according to Guerzoni (2003), their semantic architecture is different from that of ordinary questions. These are cases such as the one in (66-a), where the only acceptable answer is the negative one.

(66) a. Did Peter (even) lift a finger to help you?

b. #Yes, he (even) lifted a finger.

c. No, he didn't (even) lift a finger.

The gist of Guerzoni's (2003) proposal is that only one possible answer, the negative one, will have its presupposition met. The reasoning goes as follows. The group of negative polarity items labelled "minimizers", such as *lift a finger*, *utter a single word*, involve a silent *even*. The focus particle *even* introduces a presupposition that its prejacent is the least likely alternative among a set of contextually available alternatives (Karttunen and Peters 1979). This means that an answer such as *Yes, he (even) lifted a finger* is felicitous just in case the proposition *that Peter lifted a finger* is the least likely among possible alternatives. This presupposition is not met, since on its idiomatic meaning lifting a finger is the easiest action to do. Therefore, a question involving a minimizer will receive a negative bias: the presupposition of the positive answer is not met. The question, therefore, ends up functioning as a rhetorical one: one of the two possible answers is systematically ruled out by the presence of a minimizer in the question. Let us consider this from the perspective of the prediction formulated above. Since the proposition presupposed by the affirmative answer is inconsistent with a proposition presupposed by the negative one, a biased question has only one assertable answer. Assuming that there is an "existential" presupposition (i.e. one of the answers has to be true), this means that a biased question

presupposes its only assertable answer. Notice that this will be the case in any Common Ground, since the idiomatic meaning of the expression *to lift a finger* — the easiest thing to do — is independent of a Common Ground. This means that if we analyze biased question following Guerzoni (2003), my analysis wrongly predicts them to be ungrammatical.

Notice, however, that for the case of yes-no questions, there is perhaps no "existential" presupposition. Since either a proposition, if defined, or its negation is true, there is no need of an additional requirement that there be a least one true answer in such an answer set: the logic itself makes sure that there is necessarily one true answer. One might argue that we also find wh-questions with minimizers such as *Who will (even) lift a finger to help you?*, in which case the only felicitous answer seems to be something like *Nobody.* Technically, however, this is not an answer, but rather the denial of the "existential" presupposition that there is someone who will lift a finger. I will not go deeper into this issue, limiting myself to a remark that there are also alternative analysis of biased questions (e.g. Wagner 2013).

2.8.3 Factive wh-islands

Finally, I show below that the prediction is borne out in the case of wh-extraction out of complements of factive verbs which contain the so called "one-time-only" predicates, discussed in Oshima (2007). The relational predicate *get married to* is an example of such a predicate: it relates an individual to exactly one individual at a given moment, and we get a contrast between *get married to* and *sent a Christmas card to* with respect to question formation.

(67) a. Who does Max know that Alice sent a Christmas card to?

b. #Who does Max know that Alice got married to on June 1st?

Oshima (2007) points out that there is a unique true answer to the question in (67-b) (e.g. Max knows that Alice got married to John). Since the unique answer presupposes the truth of the that-proposition (that Alice got married to John), Oshima (2007) concludes that the

question is pragmatically odd because the speaker has to know the answer (i.e. *Max knows that Alice got married to John on June 1st*) before asking the question (by virtue of knowing that *Alice got married to John on June 1st*). Oshima (2007) gives a semi-formal paraphrase of (67-b) as part of the analysis: "Of the x's such that it is the common ground that Alice got married to x on June 1st, who is such that Max knows that Alice got married to him on June 1st?"

Notice however that *that Alice got married to John on June 1st* does not entail that *Max knows that Alice got married to John on June 1st*, and so, as it stands, it is not entirely clear why (67-b) would be uninformative. The missing link can be inserted if we, again, assume that there is a requirement that at least one answer in the answer-set be true. In the set corresponding to the denotation of (67-b) there is only one true answer since there is only one *assertable* answer, as the presuppositions of the possible answers are mutually exclusive.

(68) {[λw : in w, Alice got married to John on June 1st . Max knows that Alice got married to John on June 1st in w], [λw : in w, Alice got married to Bill on June 1st . Max knows that Alice got married to Bill on June 1st in w], [λw : in w, Alice got married to Sam on June 1st . Max knows that Alice got married to Sam on June 1st in w]}

Then the "existential" presupposition will amount to the requirement that the only assertable answer be entailed by the Common Ground, say, [λw : in w, Alice got married to John on June 1st . Max knows that Alice got married to John on June 1st]. That is, for (67-b) to be uttered felicitously, the Common Ground has to entail all the contents of its only assertable answer (precisely because there is just one assertable answer).

This obtains in any Common Ground, since it is because of the lexical properties of the question's subconstituents (a "one-time-only" predicate) that there can be only one assertable answer. Once there is only one assertable answer, it follows automatically that the

Common Ground entails its contents, by virtue of the existential presupposition. Oshima (2007) dubs such context-independent pragmatic infelicity non-contingent, as opposed to contingent infelicity which obtains only in specific contexts (such as a presupposition failure). In the case of wh-subextraction out of strong-eNPs, the source of the pathology was that all the answers had the same asserted content, which, coupled with the universal projection of the presuppositional content, leads to exactly the same result: the contents of all assertable answers are entailed in any Common Ground. Wh-subextraction out of strong-eNPs is thus another case of non-contingent infelicity, which for native speakers comes across as ungrammaticality, in contrast to contingent infelicity of rhetorical and biased questions.

2.8.4 Embedded questions

The account of the wh-subextraction ban I have developed is centred around the notions of the inquirer and updating the inquirer's state of knowledge. Namely, I proposed that it is the failure to update the inquirer's state of knowledge in any Common Ground that makes wh-subextraction out of strong-eNPs ungrammatical. This raises the question whether the account is extendable onto wh-subextraction in embedded questions. In this section I explore the prediction that the current proposal makes about wh-subextraction out of directly referential eNPs in embedded contexts. The following examples give a preview of the results: while English does not allow for wh-subextraction out of a demonstrative-eNP in embedded contexts, Austro-Bavarian does allow for wh-subextraction out of strong-eNPs.

(69) *Peter knows who Hans brought that picture of.

(70) Da Peda mechat wissen von wem da Hons des Possbüldl brocht
det$_w$ Peter would.like know of whom det$_w$ Hans det$_s$ passport.picture brought
hot.
has
"Peter wonders who Hans brought that passport picture of."

(71) Da Peda wass über wem da Hons die Gschicht brocht hot.
det$_w$ Peter knows about whom det$_w$ Hans det$_s$ story brought has
"Peter knows who Hans brought that story about."

Compare these sentences with their unembedded counterparts, which contrast in the wh-subextraction grammaticality.

(72) *Vo wem hot da Hons des possbüldl brocht?
of whom has det$_w$ Hans det$_s$ passport.picture brought
Intended: 'Who did Hans bring that passport picture of?'

(73) Vo wem hot da Hons s possbüldl brocht?
of whom has det$_w$ Hans det$_w$ passport.picture brought
'Who did Hans bring the passport picture of?'

Let us take a toy LF and consider what kind of interpretation we obtain if we embed such a question under a verb meaning 'to know'. I am adapting the semantics of *know* from Abrusán (2011), where x is an individual-type argument filled by the agent of the embedding predicate, and Q(w) is the extension of the question.[16]

(74) $[\![know]\!](w)(x, Q(w)) =$ is true iff $\forall p \in Q(w)$ and $\forall w' \in \text{Dox}_x(w)$, if $p(w) = 1$, p is true in w′ and if $p(w) \neq 1$, $\neg p$ is true in w′,
where $\text{Dox}_x(w) = \{w' \in W$: x's beliefs in w are satisfied in w′$\}$

If we were to embed our exemplary question with wh-subextraction out of strong-eNPs (LF and interpretation repeated below) under the verb *to know*, which takes *Peter* as its subject, we would get the interpretation in (79).

[16] Unlike Lahiri (2002), Abrusán (2011) does not assume a semantics type distinction between predicates such as *know* and *belief*, assuming that both take question denotations as one of their arguments. I follow this assumption, since, just as for the case of degree wh-island discussed in Abrusán (2011), it will turn out to be sufficient to capture the pattern of wh-subextraction in embedded contexts.

(75) $[\![\lambda_1$ *have you seen* [2 *des picture* $t_1]]\!]^{g,w} = \lambda$x : in w, g(2) is a passport picture of x . the hearer has seen g(2) in w

(76) $[\![who]\!]^g(75) = \{[\lambda w' :$ in w', g(2) is a passport picture of Hans . the hearer has seen g(2) in w'], [$\lambda w' :$ in w', g(2) is a passport picture of Elsa . the hearer has seen g(2) in w'], [$\lambda w' :$ in w', g(2) is a passport picture of Otto . the hearer has seen g(2) in w']$\}$

(77) $[\![know]\!]$(w)(Peter, (76)(w)) = is true iff $\forall p \in$(76) and $\forall w' \in \text{Dox}_{Peter}$(w), if p(w) = 1, p is true in w' and if p(w) $\neq$ 1, $\neg$p is true in w'.
where Dox_{Peter}(w) = $\{w' \in$ W: Peter's beliefs in w are satisfied in w'$\}$

That is, *that Peter knows who the hearer has seen that passport picture of* denotes truth in the actual world (if it has a denotation, I discuss conditions shortly) in case in all worlds such that Peter's beliefs in the actual world are satisfied in those worlds, the propositions from the answer set are true if they are true in the actual world and false if they are false in the actual world. In the example at hand all the propositions have the same truth value (if defined) in a given world, but nothing in what a sentence with *know* asserts precludes or is incompatible with that.

Let us now look at the presuppositional part. Since the embedded question denotes a set of alternatives, by Abusch's (2010) proposal it introduces the following presupposition (assuming the same domain of individuals), repeated from (50).

(78) a. λw . $\exists$x$\in\{$Hans, Elsa, Otto$\}$[in w, g(2) is a passport picture of x]
b. λw . the hearer has seen g(2) in w

By the pedantic FA in (38), the truth of these propositions is a condition for the embedding predicate to have a denotation. In the case at hand this means that it has to be part of the Common Ground that g(2) is a picture of either Hans, or Elsa, or else Otto, and that the hearer has seen g(2) for (79) to have a truth value, as spelled out below.

(79) $[\![know]\!]$(w)(Peter, (76)(w)) is defined iff $\exists$x$\in$\{Hans, Elsa, Otto\}[in w, g(2) is a passport picture of x] & the hearer has seen g(2) in w
if defined, $[\![know]\!]$(w)(Peter, (76)(w)) is true iff $\forall$p$\in$(76) and $\forall$w$'\in$Dox$_{Peter}$(w), if p(w) = 1, p is true in w$'$ and if p(w) $\neq$ 1, $\neg$p is true in w$'$.
where Dox$_{Peter}$(w) = \{w$'$ $\in$ W: Peter's beliefs in w are satisfied in w$'$\}

However, in addition to the "existential" presupposition that pertains directly to the state of knowledge of conversation participants, it seems that they also have to share the belief that it is part of Peter's knowledge that one of the possible answers is true. In the following pair of examples the appropriateness of the reaction of B shows that A, in making the utterance, indeed assumes that it is part of the shared knowledge that Peter knows that someone showed up.

(80) a. A. Peter knows who came to the party
b. B. Wait, I didn't realize Peter knew that the party wasn't cancelled/that some people eventually made it to the party.

From this I conclude that there is an additional presupposition, namely that it is part of the knowledge of (the referent of) the agent of the embedding verb that one of the possible answers is true. Thus, we need an additional domain restriction, namely, on the individual argument of the embedding predicate. Then (79) has a truth value just in case it is part of the Common Ground that g(2) is a picture of either Hans, Elsa, or Otto; that the hearer has seen g(2); *and* that these two pieces of information are part of Peter's knowledge.

But now notice that the latter piece of information doubles what the utterance with an embedded wh-question asserts, because Peter's knowing that one of the possible answers is true is equivalent in our case to Peter's knowing that the hearer has seen g(2), because all possible answers assert the same. But as Barwise and Cooper (1981) observed, utterances which involve a presupposition that entails the assertion sound deviant. Then the prediction that we can make is that wh-subextraction out of a directly referential eNP (strong-eNP or

demonstrative-eNP) in the case of embedded questions will be deviant. However, the results of the experiment are different for English and Austro-Bavarian. While the prediction is borne out for English demonstrative-eNPs, as (81) shows, wh-subextraction out of a strong-eNP in the context of embedding is possible in Austro-Bavarian, (82)–(83).

(81) *Peter knows who Hans brought that picture of.

(82) Da Peda mechat wissen von wem da Hons des Possbüldl brocht
det_w Peter would.like know of whom det_w Hans det_s passport.picture brought hot.
has
Intended: "*Peter wonders who Hans brought that passport picture of."

(83) Da Peda wass über wem da Hons die Gschicht brocht hot.
det_w Peter knows about whom det_w Hans det_s story brought has
Intended: "*Peter knows who Hans brought that story about."

One possible venue to explore in regard to this puzzle is to look more critically at the nature of the presupposition that pertains to the state of knowledge of the agent. In the analysis sketched above I suggested that the relevant presupposition is that the agent knows that one of the alternatives is true. Strictly speaking, this is just an assumption, and maybe what is presupposed is actually a weaker proposition that the agent believes that one of the alternatives is true. In that case the asserted content will contain a proposition not entailed by the Common Ground, namely that the agent knows that one of the alternatives is true. The locus of contrast between English and Austro-Bavarian might be then the strength of the agent-related presupposition: knowing-based in English vs. believe-based in Austro-Bavarian. I leave the search for the factor responsible for the contrast for future research.

2.8.5 Wh-subextraction out of weak-eNP

This chapter started with the contrast in wh-subextraction between strong and weak definite articles in Austro-Bavarian. Now that the proposal for why it is bad with strong-eNPs has been fully fleshed out, let us take a look at the interpretation of a grammatical question with a weak article to make sure that wh-subextraction out of weak-eNPs does not offend the principle of question information-seeking potential. The relevant example is repeated below.

(84) Vo wem host du [**s** Possbüldl t] gsegn?
of whom have you det$_w$ passport.photo t seen
'Who did you see the passport picture of?'

(85) who λ_1 $_{TP}$[have you seen [s picture t_1]]?

(86) $[\![s\ picture\ t_1]\!]^{g,w}$ is defined in w iff there is a unique passport picture of g(1) in w if defined in w, $[\![s\ picture\ t_1]\!]^{g,w}$= ιx. x is a passport picture of g(1) in w

(87) $[\![\lambda_1\ have\ you\ seen\ [s\ picture\ t_1]]\!]^{g,w} = \lambda$x . in w, there is a unique passport picture of x . the hearer has seen the unique passport picture of x in w]

The denotation of the TP, combined with the semantics of the wh-word, gives the following denotation for the question with the weak article.

(88) $[\![who]\!]^g$(87) = {p: $\exists$x$\in${Hans, Elsa, Otto}[p = λw′ : in w′, there exists a unique passport picture of x . the hearer has seen the unique passport picture of x in w′]}

(89) $[\![who]\!]^g$(87) = {[λw′ : in w′, there exists a unique passport picture of Hans . the hearer has seen the unique passport picture of Hans in w′], [λw′ : in w′, there exists a unique passport picture of Elsa . the hearer has seen the unique passport picture of Elsa in w′], [λw′ : in w′, there exists a unique passport picture of Otto . the hearer has seen the unique passport picture of Otto in w′]}

Obviously, these answers assert different things. What kind of a presupposition does the question have in this case? Abusch's (2010) requirement that one of the alternatives be true, combined with universal projection of the presuppositional content of the answers, amounts in this case to the truth of the following proposition,

(90) λw . ∀x∈{Hans, Elsa, Otto}[there exists a unique passport picture of x in w] & ∃x∈{Hans, Elsa, Otto}[the hearer has seen the unique passport picture of x in in w]

This proposition, if entailed by the Common Ground, does not make an answer such as *I have seen the passport picture of Hans* uninformative.[17] That is, none of the answers has to be entailed by the Common Ground at the time when the question is asked. For an answer to be assertable it has to be part of the Common Ground that there exists a unique passport picture of the respective individual (Hans, Elsa, or Otto). An assertable true answer, then, if added to the Common Ground, reduces the context set c, since possible worlds where this answer is not true are excluded from of c, thus providing new information. I conclude that this makes a question with wh-subextraction of out a weak-eNP grammatical: it allows for possible answers that provide new information for the inquirer.

[17] If we were to introduce a situation argument in the semantics of weak eNPs, it is conceivable that under certain assignments, such as a topic situation which involves only one picture, which is a picture of all the individuals that *who* ranges over, all the propositions will be identical in their asserted content (since in each case the weak-eNP will pick out the same picture). The prediction would then be that the question would still be grammatical since answers' uninformativeness in such case depends on the context providing the topic situation of a particular kind (one that contains a single picture). Thanks to Florian Schwarz for bringing such cases of "accidental" coreference to my attention. I have, however, not been able to find a way to test this prediction.

2.8.6 Prediction borne out

In this section I show that my proposal correctly predicts that in contexts where strong-eNPs lose their direct referentiality, wh-subextraction is repaired.

The analysis of the ban on wh-subextraction out of strong-eNPs in this chapter has been based on the premise that, given F. Schwarz's (2009) semantics for strong articles, the denotation of a strong-eNP (if it has a denotation), by default, does not covary with an operator-bound variable, such as wh-trace, since it is always identical to the value of the free pronoun a strong-eNP involves. This was the reason for the ungrammaticality of the resulting questions: absence of variation in the denotation of a strong-eNP leads to the asserted content of the answers being identical. In contrast, the denotation of a weak-eNP is perfectly capable of covarying, which is expected if the semantics of the weak article is what F. Schwarz's (2009) takes it to be: a Fregean definite plus an appropriate domain restricting mechanism.

The ability to covary is then a hallmark of a Fregean definite, which for this very reason allows for wh-subextraction, while the opposite is true of a directly referential strong-eNP. The covariation patterns, independently of the wh-subextraction contrast, are illustrated for Austro-Bavarian by the following pair. For (91-a) there is a reading available that for every boy there is a separate picture, whereas in (91-b) no such reading is available. The only possible reading for (91-b) is the one involving a particular, discourse given picture, which shows all the boys. This shows that the denotation of the strong-eNP cannot covary with the trace of the universal quantifier embedded within a strong-eNP, assuming something like the following LF *every boy*$_1$ λ_1 *... [2 des picture of* t_1*].*

(91) a. Ea hot [**s** Büldl von jedm Buam] ausgsuacht.
he has det$_w$ picture of every boy picked.out
'He has picked out the picture of every boy.' (Either one picture for everybody or separate pictures for each boy)

b. Ea hot [**des** Büldl von jedm Buam] ausgsuacht.
he has det$_s$ picture of every boy picked.out

'He has picked out the picture of every boy.' (One picture for everybody)

However, under limited circumstances, on which I elaborate in the next chapter, the denotation of a strong-eNP gains the capacity to covary. As observed in King (2001), among others, in English in some cases demonstrative-eNPs behave as classic definites in that, instead of referring to a contextually fixed individual, their denotation covaries with some operator-bound variable, as in the following example.

(92) Every father dreads that moment when his eldest child leaves home.

The same is true in the case of Austro-Bavarian strong-eNPs. In (93) for every father there is a distinct dreadful moment when his eldest child moves out.

(93) A jeda Vota fiacht si voa [**dem** Moment [wenn s' ödeste Kind
a every father dreads refl for det_s.DAT moment when det_w.NOM eldest child
ausziagt]].
moves.out
'Every father dreads that moment when his eldest child moves out.'

The informal generalization is then that the context in (93) makes *that*-eNP behave like a classic definite, that is, covary. In the next section I will propose that the relevant factor is the presence of a restrictive relative clause. But for the purposes of the current discussion we can just take the structure in (93) as is and make a straightforward prediction that wh-subextraction in this case should be possible, since it is precisely the (unavailability of) covariation that is a deciding factor for whether wh-subextraction is possible, according to my analysis. This prediction is borne out.[18]

(94) *Vo wem hot da Hons des possbüldl brocht?
of whom has det_w Hans det_s passport.picture brought

[18] Some English speakers also report improvement in acceptability of *What did Peter have [that battle with t that he eventually lost]* compared to *What did Peter have [that battle with t]?*.

Intended: 'Who did Hans bring that passport picture of?'

(95) Vo wem hot da Hons des possbüldl was a jo söwa gmocht hot
of whom has det_w Hans det_s passport.picture that he prt himself made has
brocht?
brought
'Who did Hans bring that passport picture of that he made himself'

That the strong article can be used in (95) confirms that it is indeed the inability of a strong-eNP in default cases to covary which is responsible for ungrammaticality of wh-subextraction, as has been proposed in this chapter: once covariation with an operator-bound variable is made possible, wh-subextraction becomes possible as well. More generally, these data would stand in the way of any purely syntactic solution to the wh-subextraction puzzle.

Another set of highly relevant cases to be explored in future work are those where the wh-operator, in addition to the trace embedded within a strong-eNP, binds another trace, to the effect that the possible answers vary in their asserted content because of the variation introduced by the second trace. On the account developed here, as long as there is a variation in the asserted content of the possible answers, a question should be grammatical. The prediction seems to be borne out, in view of the grammaticality of the following example.

(96) Who did you see that picture of t_1 and talk to t_1?[19]

In addition, grammaticality seems to be improved by the presence of parasitic gaps or pronouns. The semantic effect of those is evidently the same as that of an "additional" trace – they reintroduce variation in the asserted content of the possible answers.

(97) a. *Which woman did he see that picture of?

[19] Thanks to Alex Drummond for the suggestion.

b. ?Which woman did he see that picture of before inviting (her) to the party?

If the patterns are confirmed with more examples in further work, this would provide a conclusive argument in favour of a semantic/pragmatic solution.

2.9 Conclusions

In this chapter I proposed a semantic-pragmatic analysis of the wh-subextraction ban out of eNPs with strong articles in Austro-Bavarian German. First, I showed that the denotation of such questions involves answer propositions that have the same assertive content. Assuming Abusch's (2010) presupposition that one of the answers is true, this means that for such a question to be felicitous, the Common Ground has to entail the asserted content of its answers. Moreover, I presented arguments that accommodation of the presuppositions of the answers cannot possibly be a source of new information *for the inquirer*, since he commits to the truth of those while uttering the question. Thus we end up with a question which, in order to be felicitously asked, requires a Common Ground which entails both the assertive and the presuppositional content of its possible answers, with no option of accommodating the presupposed information by the inquirer. I proposed that such a question is ungrammatical because with respect to any Common Ground it cannot be answered with an informative answer, that is, it has a zero information-seeking potential.

The key to this pathology, I proposed, is the semantics of the strong article in the version of F. Schwarz (2009), which anchors the denotation of the eNP-of-extraction to a given individual and thus precludes the assertive content of answer-propositions from covarying with the wh-bound variable. From the cross-linguistic perspective, then, the impossibility of wh-subextraction out of certain eNPs can serve as a diagnostic for the semantic nature of the article involved. Namely, the impossibility of wh-subextraction out of a given eNP indicates the presence of silent individual pronoun in the LF of the article that heads this eNP. This, in turn, makes certain predictions concerning the distribution

of the corresponding eNP, namely, it is predicted to have pronominal uses, deictic uses, and to be insensitive to scope-bearing operators. One immediately relevant research area in this respect are the so called referential uses of indefinites, discussed in Fodor and Sag (1982). Another highly relevant testing ground for the proposal are cases of subextraction out of eNPs in non-questions, such as topicalization and relativization-related movements. An example of the latter is given below, where the relativized position is embedded within a demonstrative-eNP.

(98) *I saw the guy John showed me that picture of.

The proposal made in this chapter does not predict ungrammaticality in this case, since it capitalizes specifically on the pragmatic requirements imposed on questions (i.e. non-zero information-seeking potential). Although I will not pursue an in-depth investigation of such cases here, at the first approximation it seems that we can still make a case for a pathology of modification which involves a relativization site within a directly referential DP. Specifically, in (98) we encounter an RRC whose denotation is insensitive to the interpretation of the trace in the relativization site, just like the semantics of questions with strong-eNPs is insensitive to the interpretation of the wh-trace. Assuming a textbook analysis of RRCs whereby they denote properties of individuals obtained as a result of lambda-abstraction over the trace in the relativization site, the property denoted by the RRC in (98) corresponds to a constant function which maps every individual it is defined for to the same truth value in a given world. As a consequence, the RRC characterizes either the entire set of pictures of x, or else the empty set.

(99) $[\![OP_1\ \textit{John showed me}\ [2\ \textit{that picture of}\ t_1]]\!]^g = \lambda \mathrm{x} : \mathrm{g}(2)$ is a picture of x . John showed me g(2)

Adding such a modifier does not seem to help to restrict the denotation of the NP, which tentatively might be the source of the infelicity of (98). To put this into perspective, it

seems that these cases might fall under a more general constraint against operations which do not have any semantic effect or, informally, why wh-move or relativize if there is no variable introduced as a result. I leave a fuller exploration of these questions to the future.

I also proposed that a question based on wh-subextraction out of a strong-eNP is different from a rhetorical question or a question with a minimizer in that only the former necessarily has a zero information-seeking potential: that the content of the answers is entailed by the Common Ground is part of the felicity conditions on the question itself. A pathology of the same nature emerges from Oshima's (2007) pragmatic account of the impossibility of wh-subextraction out of factive islands; because the only assertable answer has to be entailed by the Common Ground by virtue of the "existential" presupposition, the question fails to seek any new information. The semantic-pragmatic line of analysis of wh-island effects has been pursued in recent years for a number of other island types.

Fox and Hackl (2006) and Abrusán (2008) give an account of the negative island effect in manner questions exploiting the maximality condition originating from Dayal (1996). The gist of Abrusán's (2008) argument is that this condition cannot be met in negative manner questions. A similar-in-spirit analysis is given to the negative island effect in degree questions in Abrusán and Spector (2011). Schwarz and Shimoyama (2011) appeal to a version of the maximality condition in their account of the ungrammaticality of negative degree questions (that is, negative island effect in degree questions) in Japanese and the obviating role of the *wa* particle. They conclude, again, that the answer-set corresponding to the denotation of negative degree questions cannot satisfy the maximality condition. The cornerstone methodology of these analyses consists in investigating what the semantics of such a question would be if its semantic composition was executed all the way to the end. The resulting semantic model of an ungrammatical question, specifically, the set of its possible answers, is examined as to what pragmatic-semantic principles it can be offending. I used the same approach in this chapter.

The results of this chapter confirm the silent pronoun-based approaches to the semantics of strong articles and demonstratives, as they capture the directly referential behaviour of strong- and demonstrative-eNP. However, the contrast between (100) and (101), repeated from (94) and (95) respectively, makes it clear that, first, something additional needs to be said about the semantics of the strong article in (102) (repeated from (93)) and (101), since the version used so far is not flexible enough to cover the whole range of data.

(100) *Vo wem hot da Hons des possbüldl brocht?
of whom has det_w Hans det_s passport.picture brought
Intended: 'Who did Hans bring that passport picture of?'

(101) Vo wem hot da Hons des possbüldl was a jo söwa gmocht hot brocht?
of whom has det_w Hans det_s passport.picture that he prt himself made has brought
'Who did Hans bring that passport picture of that he made himself'

(102) A jeda Vota fiacht si voa [**dem** Moment [wenn s' ödeste Kind ausziagt]].
a every father dreads refl for det_s.DAT moment when det_w.NOM eldest child moves.out
'Every father dreads that moment when his eldest child moves out.'

Second, whatever modification is made, it needs to be constrained if we want to keep the account of the wh-subextraction pattern based on direct referentiality of the strong article. These issues are addressed in the next chapter where I offer an analysis of covariation based on the ability of restrictive relative clauses to substitute for the silent individual pronoun in the LF of a strong article.

CHAPTER 3
The loss of direct referentiality: A structural account

This chapter is concerned with an analysis of cases where a strong-eNP covaries with an operator-bound variable, that is, loses its direct referentiality. The analysis is built on the observation that the loss of direct referentiality is conditioned by the presence of a restrictive relative clause. In light of this, I offer a structural solution whereby the silent individual pronoun in the LF of strong-eNPs, the primary component responsible for direct referentiality, can be replaced with a restrictive relative clause. Specifically, I propose an adaptation of the semantics of Elbourne (2008a) for English demonstratives to Austro-Bavarian strong articles whereby their LF involves a relational component R. In contrast to Elbourne (2008a), I propose that the relational component is not a variable, but rather a functional head with constant semantics, which takes an NP as its complement and introduces either a silent individual pronoun or a restrictive relative clause in its specifier. This analysis naturally leads to the conclusion that we can keep the semantics of D identical (Fregean) both in weak- and strong-eNPs. The morphophonological difference between the two series of articles amounts to a contextual spellout of D.

In the next section I discuss the scopeless behaviour of directly referential expressions, such as, by default, strong-eNPs. In section 3.2 I present cases which deviate from this pattern, already previewed at the end of the previous chapter when talking about wh-subextraction being predictably repaired if a strong-eNP becomes capable of covariation. I then propose a semantico-syntactic model of a strong-eNP which accounts for the following major empirical facts: a strong-eNP becomes scope-sensitive in the presence of a restrictive relative clause; a strong-eNP does not need an anaphoric antecedent in this case; in a strong-eNP the nominal predicate, irrespective of the relative clause, has to denote a set greater than a singleton. All of these facts are captured on the assumption that there is a

relational head introducing either a silent individual pronoun or a restrictive relative clause, and imposing an anti-singleton requirement on its complement, NP. The corresponding LF of a strong-eNP is sketched below, where D has a regular Fregean semantics (plus some domain-restricting mechanism that I gloss over here), and RRC stands for a restrictive relative clause.

(1) $_{DP}$[D $_{RP}$[i/RRC [R NP]]]

3.1 Scopelessness of strong-eNPs

In the previous chapter I showed that on F. Schwarz's (2009) semantics of strong-eNPs they are essentially directly referential expressions in the Kaplanian sense in that if they have a denotation, their denotation is constant across evaluation points. This semantics effectively captures the ban on wh-subextraction out of strong-eNPs. The crucial semantic component, which makes strong-eNPs directly referential, is a silent individual pronoun with an index i. On F. Schwarz's (2009) account, D_s denotes a function which takes the value of the index and the property denoted by the nominal expression as its arguments, and returns the value of the index, in case the individual picked out by the index has the nominal property. Thus, the denotation of a strong-eNP, in case D_s's presupposition is met, is always the value of the index. Therefore, in those cases *where the index is unbound*, a strong-eNP is semantically identical to a free pronoun it contains, again, modulo the presuppositional content. The presuppositional content puts constraints on the range of values that can be assigned to the free pronoun. The value of *den Tisch* 'that table', assuming it involves a silent free pronoun, has to be found among individuals that are tables. Within the domain of tables, the value is totally dependent on the contextually supplied assignment function g and is therefore independent of the world with respect to which the sentence is evaluated. This predicts that a strong-eNP should manifest scopelessness, to use the term of Heim (2004). That is, it should be insensitive to the presence of any scope-bearing expressions and to be "interpreted as if they had widest scope with respect to any quantificational

element". In the general case, a scope bearing operator is an expression which introduces quantification over a certain type of variable: time, location, world or part of a world (situation), or individual, within a particular syntactic domain. To be sensitive to a scope bearing operator means to be an expression whose denotation can vary, provided structural conditions are met, as a function of a variable quantified over by the operator. Given this simple definition, we see that the eNP *des Haus* ('that house') in (2) is scopeless with respect to the quantifier over time periods/situations *jedn Somma* 'every summer': the only reading available involves a particular contextually indicated house, corresponding to the index 1, which Otto rents every summer. There is no reading on which Otto rents a different house every summer.

(Previous discourse: Every year one house on the seaside remains unrented.)

(2) Jedn Somma mietet si da Otto **des** Haus.
every summer rents himself $\det_w$ Otto $\det_s$ house
'Every summer Otto rents that house.' (The same house every year.)

The same holds for English complex demonstratives, which, in the words of Dever (2001: 278), "do not engage in scope interactions".

On F. Schwarz' (2009) treatment, (2) has the following truth conditions, provided g(1) is a house in a situation s.

(3) $\forall$s[s is a summer $\rightarrow$ Otto rents g(1) in s]

This is not the case in (4), which allows for two different interpretations. English *the* patterns the same.

(Previous discourse: Every year one house on the seaside remains unrented.)

(4) Jedn Somma mietet si da Otto **s'** Haus.
every summer rents himself $\det_w$ Otto $\det_w$ house
'Every summer Otto rents the house.' (Can be a different house every year.)

One interpretation involves Otto renting any house which remains vacant on a given summer. In other words, the denotation of weak-eNP covaries with a variable over time periods/situations (summers in our case). On the second reading there is one and the same available house on the sea, and every summer Otto rents it.

The availability of these two readings can be attributed to the availability of two different LFs. In one case the domain restrictor associated with the weak article (more precisely, a situation pronoun, as in F. Schwarz (2009)) is bound by the universal quantifier, in which case we obtain the following denotation for (4) (provided it has a denotation, which is the case if the weak article's uniqueness presupposition is met, meaning there exists a single available house).

(5) $\forall$s[s is a summer $\rightarrow$ Otto rents in s the only available house on the sea in s].

Another LF corresponds to the situation variable on the weak article having the same value as the topic situation, which gives rise to the denotation below, where the subscript "top" stands for the topical situation.

(6) $\forall$s[s is a summer $\rightarrow$ Otto rents in s the only available house on the sea in s_{top}].

Obviously, here we are not manipulating scopal relations as such between the relevant eNP and the quantifier in the sense of changing syntactic configurations, but rather imitating different syntactic configurations by either allowing the situation pronoun which provides domain restriction for the weak article to be bound by the universal quantifier, or leaving it free and assigning to it a contextually given "topic" value. This way of handling scopal effects with definites was suggested in Heim (1991) and developed in F. Schwarz (2009). What is important is that the denotation of a weak-eNP changes depending on the value of the intensional (situation) variable. This contrasts with the denotation of a strong-eNP which, whether or not there is quantification over situations, is fixed to the individual

assigned to the index i *by the utterance context*. I will continue to use the term scopelessness to refer to the property of an eNP to have its extension fixed across evaluation points.

Another case where scopelessness is at stake can be illustrated with the following pair from Austro-Bavarian, repeated from chapter 2, where the eNP of interest embeds a universal quantifier. Once again, while the weak article allows both for the reading on which there is one picture for everybody and the one on which there are separate pictures for each boy, the strong article does not allow for the covarying reading.

(7) a. Ea hot [**s** Büldl von jedm Buam] ausgsuacht.
he has det_w picture of every boy picked.out
'He has picked out the picture of every boy.' (Either one picture for everybody or separate pictures for each boy)

b. Ea hot [**des** Büldl von jedm Buam] ausgsuacht.
he has det_s picture of every boy picked.out
'He has picked out the picture of every boy.' (One picture for everybody)

That there is no covarying reading follows from the assumption that strong-eNPs are directly referential, which, in turn, is the result of the presence in their structure of a free silent individual pronoun. It needs to be stressed that there is nothing special about the silent individual pronoun in question: like any other 3rd person pronoun it can stay free, in which case it receives its value from the variable assignment function, or else it can be bound by a quantifier over individuals. Scopeless behaviour of the respective DP is expected only for the former cases. In that sense it is slightly terminologically inaccurate to talk about strong- or demonstrative-eNPs as directly referential. Rather, we have to say that they have *directly referential uses*, which correspond to the silent individual pronoun remaining free.

Since a strong-eNP is expected to be scopeless only if its silent individual pronoun is *unbound*, I will put into a separate category cases of covariation which can be analyzed as involving binding of the pronoun. For instance, F. Schwarz (2009:255) discusses some cases where the denotation of a strong-eNP covaries with a quantifier-bound antecedent, as

in the following example where the denotation of *dem Zimmer* 'that room' depends on its quantifier-bound antecedent *eines der Zimmer* 'one of the rooms'.

(8) Jedes Mal, wenn mir bei einer Gutshausbesichtigung eines der Zimmer
Every time when me during a mansion tour one the.GEN
besonders gefällt, finde ich später heraus, dass eine berühmte Person eine
rooms especially like find I later out that a famous person
Nacht #im/in dem Zimmer verbracht hat.
a night in.det$_w$/ in det$_s$ 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.' (Standard German, F. Schwarz (2009:255))

F. Schwarz (2009) proposes to handle such cases by assuming dynamic binding of the pronominal index, which requires a strong-eNP to have as its antecedent an indefinite with which it covaries (Chierchia 1995 among others).

In the case of (2), repeated below, there is no c-commanding binder for the individual pronoun in the strong-eNP, and the covarying reading remains unavailable.

(Previous discourse: Every year one house on the seaside remains unrented.)

(9) Jedn somma mietet si da Otto **des** Haus.
every summer rents himself det$_w$ Otto det$_s$ house
'Every summer Otto rents that house.' (The same house every year.)

Cases of such "direct" binding (as opposed to "quantifying in", see below) are discussed in King (2001) and Elbourne (2008a) with regard to English demonstrative-eNPs, such as in *Mary talked to* ***no senator*** *without declaring afterwards that* ***that senator*** *was the one who would cosponsor her bill.*

In this dissertation I focus exclusively on cases which cannot be accommodated by assuming direct binding of the index, that is, I discuss only "quantifying in" cases. These cases present a major challenge for the semantics of strong articles (and demonstratives) as they cannot be reduced to simple binding and necessitate modifications in the semantics

or syntax of some components of strong- and demonstrative-eNPs, as I show in the next section.

3.2 The covariation problem

Given the scopeless behaviour of the strong-eNPs discussed in the previous section, it comes as a surprise that there are cases where a strong-eNP covaries with an operator-bound variable. For instance, the "quantifying in" use of a strong-eNP is available in the following example, repeated from chapter 2. This replicates an English example from King (2001:74).

(10) A jeda Vota fiacht si voa dem Moment wenn s' ödeste Kind
a every father dreads refl for det_s.DAT moment when det_w eldest child
ausziagt.
moves.out
'Every father dreads that moment when his eldest child moves out.'

This sentence, on its only intuitively acceptable reading, conveys that for every father there is a distinct moment which he dreads, namely the moment of his own eldest child leaving home. Prima facie, this undermines the assumption about scopelessness of strong-eNPs and puts in question the main premise upon which the discussion in the previous chapter was built, namely, that even if there is a dependency between a higher operator, such as a wh-word, and a variable embedded within a strong-eNP, the denotation of the strong-eNPs as a whole does not covary with the variable since the unbound index of the strong article fixes the denotation to a contextually given individual.

F. Schwarz's (2009) analysis of strong articles, assumed in chapter 2 to account for the wh-subextraction ban, cannot handle (10). Recall that on this analysis a strong-eNP denotes an individual picked out by the index.[1]

[1] In this chapter I recast both Elbourne's (2008) and F. Schwarz's (2009) proposals in extensional, that is, non-situation, semantics for clarity. As far as I can see, this mode of

(11) [i [D_s NP]] (based on F. Schwarz (2009))

(12) $[\![D_s]\!] = \lambda \mathrm{P}_{<e,t>}$. λx : $\exists$!y[P(y) & y = x] . ιy[P(y) & y = x]

As noted in chapter 2, this function is equivalent to the following, because for any property P (denotation of the nominal predicate) and individual y for which the function in (12) is defined, its output is x.

(13) $[\![D_s]\!] = \lambda \mathrm{P}_{<e,t>}$. λx : P(x) . x

Given that the individual argument of this function is filled by the individual picked out the index, the denotation of a strong-eNP is thus anchored to a contextually specified individual corresponding to the value of the index. Let us see what it gives for the example in (10) (I assume that universally quantified DP *every father* moves up, creating a lambda-abstraction over TP).

(14) Every father$_2$ $\lambda_{2\ TP}$[t_2 dreads [1 [that [moment when his$_2$ eldest child moves out]]]]

The object eNP is interpreted as follows.

(15) $[\![eNP]\!]^g$ is defined iff g(1) is the moment when g(2)'s eldest child moves out
if defined, $[\![eNP]\!]^g$ = g(1)

Assuming, as usual, that the presupposition of an eNP becomes a definedness condition on the function denoted by the lambda-abstract over TP, we obtain the following interpretation of the lambda-abstract. The possessive pronoun ends up being bound by the same lambda operator that binds the trace of the moved subject *every father*.

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presentation does no harm to the truth-conditional import of strong articles/demonstratives in the cases I discuss.

(16) $[\![\lambda_2\ t_2$ *dreads* 1 *that moment when his*$_2$ *eldest child moves out*$]\!]^g$ = λz : g(1) is the moment when z's eldest child moves out . z dreads g(1)

This TP denotes a function which characterizes a set of all individuals that dread some specific contextually given moment g(1). The whole sentence is true in case every individual from the relevant set of fathers is also a member of the set of people who dread g(1). This, of course, is not the right interpretation, as we want to end up with a reading whereby for every father there is a different dreadful moment.

While "quantifying in" uses of strong-eNPs, as far as I know, is a new problem, this has been a major issue for the theory of English demonstratives (Neale 1993, Nunberg 1993, Lepore and Ludwig 2000, Dever 2001, King 2001, Powell 2001). The availability of such uses goes against what Dever (2001:271) formulated as the Dilemma Hypothesis.

(17) Every term in natural language is either referential or quantificational.[2]

"Quantifying in" uses were the main reason King (2001) abandoned the Kaplanian analysis of English complex demonstratives as directly referential expressions in favour of a quantificational approach. Elbourne (2008a), building on a proposal put forth in Nunberg (1993), offers a treatment that captures the scopelessness of demonstratives together with their covariation.

In the next section I present Elbourne's (2008) proposal, by highlighting those components that differ from F. Schwarz's (2009) solution for strong articles and that make it possible to capture covariation. The essential ingredient of Elbourne's (2008) LF for demonstrative-eNPs is an object-language variable over relational predicates R which mediates the relation between the index and the denotation of the whole eNP. Crucially, R

[2] Note that Dever (2001) assumes that referential terms are "syntactically simple". This will become of crucial importance later in the discussion when I propose a syntactic decomposition of what appears to be a single demonstrative or strong article.

can take values which allow the denotation of a demonstrative-eNP not to be fixed to the individual picked out by the index. I will then turn to the discussion of the empirically observed role of restrictive relative clauses in the denotation of strong-eNPs, which appears to be merely accidental on Elbourne's (2008) analysis.

To capture the effect of restrictive relatives, in section 3.4 I propose a more articulated LF of strong-eNPs, whereby the relational component assumed by Nunberg (1993) and Elbourne (2008a) for English demonstratives corresponds to a separate functional head. Thus the previously-proposed semantic complexity of strong articles relative to their weak counterparts gets translated into a more articulated syntactic structure.

3.3 Nunberg (1993), Elbourne (2008): a relational variable

The predecessor of F. Schwarz's (2009) proposal, Elbourne's (2008) formalization of Nunberg's (1993) semantics of English demonstratives involves a richer structure than (11): in addition to an index i and a nominal predicate, D also combines with a relational component R. This component is responsible for mediating the relation between the index value and the final denotation of the eNP.[3]

(18) [i [R [D NP]]] (based on Elbourne (2008a))

R in (18) is a variable over relational predicates of type $< e, < e, t >>$ that maps an individual (this ends up being the value of the index) onto a function which maps an individual to truth if it has a particular property. R being a variable, the exact semantics of the relational component is not fixed once and for all. In the default case R corresponds to a functional relation of identity: the denotation of R is a function that maps an individual

[3] To make a parallel with F. Schwarz's (2009) proposal clearer, I changed the original constituency [[[D i] R] NP] to [i [R [D NP]]], changing the order or arguments in the lexical entry of D accordingly.

onto a property of individuals to be identical to the first argument. In other words, the semantics of R relates an individual to a unique identical individual.

(19) $[\![R]\!] = \lambda x\ .\ \lambda y\ .\ y = x$ (based on Elbourne (2008a))

In principle, within Elbourne's (2008) framework, R can denote any sort of relation, for instance, a function from individuals to a function which maps an individual to truth if this individual knew the first individual for ten years. Elbourne (2008a), however, emphasizes that the identity relation is the default value and that R takes other values only when the default one is made pragmatically unavailable.

Although Elbourne (2008a) does not make it explicit, the shift from a functional to a non-functional semantics of R is what corresponds to the shift from directly to non-directly referential interpretation of a demonstrative-eNP. The remainder of this section is concerned with clarifying and discussing the repercussions of the (informal) scheme below.

(20) *(Non)functionality of R – (non)direct referentiality*

a. functional R (relates an individual to a unique individual) → directly referential demonstrative-eNP

b. non-functional R (relates an individual to possibly multiple individuals) → non-directly referential demonstrative-eNP

3.3.1 Functional R

I show below that in those cases where Elbourne's (2008) R denotes the identity relation, strong-eNPs on both F. Schwarz's (2009) account and an adaptation of Elbourne's (2008) account for strong articles, end up denoting the individual picked out by the index. More broadly, the denotation of an eNP is "anchored" to a contextually given individual and thus incapable of covarying if R denotes a functional relation, which relates the index value

g(i) to exactly one individual (or, equivalently, the function $[\![R]\!]$ maps the index value g(i) onto a property which holds of exactly one individual).

I begin by presenting the details of the strong-eNP composition on the (adaptation of) proposal of Elbourne (2008a) for the case of a functional R. Then I show how Elbourne (2008a) overcomes the problem of "quantifying in" uses by allowing R to denote a *non-functional relation*.

Given the LF in (21) repeated from (18), the function denoted by D_s takes a property of individuals P (nominal property), a relation Q (denotation of R), and an individual type argument x (index value), and returns a unique individual which has the property P and the property Q(x). By (22), repeated from (19), Q(x) is a characteristic function of the set of individuals identical to x.[4]

(21) [i [R [D NP]]] (based on Elbourne (2008a))

(22) $[\![R]\!] = \lambda x\ .\ \lambda y\ .\ y = x$ (based on Elbourne (2008a))

(23) $[\![D_s]\!] = \lambda P_{<e,t>}\ .\ \lambda Q_{<e,<e,t>>}\ .\ \lambda x : \exists!y[P(y)\ \&\ Q(x)(y)]\ .\ \iota y[P(y)\ \&\ Q(x)(y)]$
(based on Elbourne (2008a))

When compared with F. Schwarz's (2009) semantics of the strong article, repeated below, the main extra feature of Elbourne's (2008) semantics is the relational property Q.

(24) $[\![D_s]\!] = \lambda P_{<e,t>}\ .\ \lambda x : \exists!y[P(y)\ \&\ y = x]\ .\ \iota y[P(y)\ \&\ y = x]$
(based on F. Schwarz (2009))

[4] As noted above, I simplify Elbourne's (2008) semantics of the demonstratives by removing the intensional dimension represented by situation arguments in the semantics of predicates. In addition, I took out the distal/proximal component of the semantics of the demonstrative since it is not relevant in the discussion of German strong articles.[5] The original Elbourne's (2008) version looks as follows: $[\![that]\!]^{w,h,a,t} = \lambda x\ .\ \lambda f_{<e,<<s,e>,<s,t>>}\ .\ \lambda g_{<<s,e>,<s,t>>}\ .\ \lambda s\ .\ \iota z(f(x)(\lambda s'.z)(s) = 1\ \&\ g(\lambda s'.z)(s) = 1\ \&\ distal(x,w,a,t))$ (presuppositional content is omitted in the original).

Or, again, equivalently,

(25) $[\![D_s]\!] = \lambda \mathrm{P}_{<e,t>} \,.\, \lambda \mathrm{x} : \mathrm{P(x)} \,.\, \mathrm{x}$ (based on F. Schwarz (2009))

On the assumption that the relational argument in (23) is filled by R that denotes the identity relation, notice that for all individuals x and for all properties of individuals P for which the functions in (23) and (25) are defined, their outputs are identical to the individual argument x. That is, in both cases the D_s-function returns the value of the index as the denotation of the whole eNP, as (26) shows.

(26) a. $[\![1\ die\ Katze]\!]^g$ is defined iff g(1) is a cat
if defined, $[\![1\ die\ Katze]\!]^g = \mathrm{g}(1)$ (based on F. Schwarz (2009))

b. $[\![1\ R\ that\ cat]\!]^g$ is defined iff g(1) is a cat
if defined $[\![1\ R\ that\ cat]\!]^g = \mathrm{g}(1)$
$[\![R]\!] = \lambda \mathrm{x} \,.\, \lambda \mathrm{y} \,.\, \mathrm{y} = \mathrm{x}$ (based on Elbourne (2008a))

The schemes below illustrate the equivalence for a random nominal predicate.

(27) a. $[\![1\ die\ NP]\!]^g$ is defined iff $[\![NP]\!](\mathrm{g}(1))$
if defined, $[\![1\ die\ NP]\!]^g = \mathrm{g}(1)$ (based on F. Schwarz (2009))

b. $[\![1\ R\ that\ cat]\!]^g$ is defined iff $[\![NP]\!](\mathrm{g}(1))$
if defined $[\![1\ R\ that\ NP]\!]^g = \mathrm{g}(1)$
$[\![R]\!] = \lambda \mathrm{x} \,.\, \lambda \mathrm{y} \,.\, \mathrm{y} = \mathrm{x}$ (based on Elbourne (2008a))

However, the equivalence holds only if the R variable in Elbourne's (2008) LF is the identity relation. As I illustrate below, on Elbourne's (2008) analysis the nature of the relation between the index and the eNP denotation can be changed by changing the value of R. As was stressed at the beginning of this section, as long as R denotes a functional relation, the strong-eNP is predicted to behave directly referentially. Let us take, for instance, the

functional relation 'be the author of' as R's value.[6] This gives us the following denotation for the strong-eNP *des Autor* ('the author'), relating an object to a unique author of that object. Simplifying matters, let us assume that the noun *author* denotes a one-place predicate.

(28) a. [1 [R_{author} [D_s author]]]

b. $[\![R_{author}]\!]^g = \lambda x\ .\ \lambda y\ .$ y is the author of x

c. $[\![D_s\ author]\!]^g = \lambda Q_{<e,<e,t>>}\ .\ \lambda x : \exists y![y \text{ is an author } \&\ Q(x)(y)]\ .\ \iota y[y \text{ is an author } \&\ Q(x)(y)]$

d. $[\![1\ R_{author}\ D_s\ author]\!]^g$ is defined iff $\exists y![y \text{ is the author of } g(1)]$
if defined, $[\![1\ R_{author}\ D_s\ author]\!]^g = \iota y[y \text{ is the author of } g(1)]$

This eNP is predicted to behave scopelessly since with respect to any point of evaluation in a given context under a given assignment g it is the same individual who is the author of g(1), since the functional relation denoted by R relates g(1) only to one individual. Predictably then, the following sentence, requiring covariation of the denotation of the agent eNP on the relevant reading, is infelicitous with the strong article.

(Context: During a book fair authors sign their books.)

(29) a. A jeds Buach is **vom** Autor untaschriem woan.
a every book is by.det_w author signed become
'Every book was signed by the author.'

b. #A jeds Buach is von **dem** Autor untaschriem woan.
a every book is by det_s author signed become
Intended: 'Every book was signed by the author.'

[6] Although semantically there are no constraints predicted on the range of relations that R can denote, the relation of identity is the only functional relation that Elbourne (2008a) discusses.

An example below from F. Schwarz (2009: 264) illustrates the same point for Standard German.

(30) In jeder Stadt, in der unser Zug hielt, wurde mir ein Brief **vom**/#von
In every city in which our train stopped was I a letter from.det$_w$/from
dem Bürgermeister überreicht.
det$_s$ mayor handed
'In every city that our train stopped in a letter from the mayor was handed to me.'

(Standard German, F. Schwarz (2009:264))

The flexibility of R's meaning, and, in particular, the assumption that it can denote *non-functional relations*, is what allows Elbourne (2008a) to capture cases where the denotation of a demonstrative-eNP covaries. In the next section I turn to non-functional values of R, which make it possible for the denotation of an eNP not to be anchored to a contextually given individual and therefore not to be scopeless.

3.3.2 Non-functional R

As mentioned above, for Elbourne (2008a) R can denote either a functional relation, such as the relation of identity which relates an individual to a unique identical individual, or else a non-functional relation, which can relate an individual to multiple individuals. An example of the latter is the relation of exemplification, which Elbourne (2008a) proposes to be involved in the "quantifying in" use of demonstrative-eNP in (31).

(31) Every father dreads [1 [R [that moment when his eldest child leaves home]]].

Elbourne (2008a) makes an additional assumption that the index in (31) points to a concept, namely, to "the concept of [...] having one's eldest child leave home".[7] Thus, the R-function takes the individual which is a concept and returns a property of being an example of this concept. In (32) I put this proposal in formal terms.

[7] Elbourne (2008a) does not give a formal definition for the term "concept".

(32) $[\![R]\!] = \lambda$x. λy . y exemplifies x[8]

Since this type of R is *non-functional*, that is, the relation it denotes can be established between an individual and multiple other individuals, the denotation of a demonstrative-eNP as a whole is not anchored to the context, as therefore qualifies for a "quantifying in" use which requires the denotation of a demonstrative-eNP to covary with a quantifier bound variable. For convenience, I repeat my adaptation of Elbourne's (2008) semantics of the demonstrative below.

(33) $[\![D_s]\!] = \lambda P_{<e,t>} . \lambda Q_{<e,<e,t>>} . \lambda x : \exists!y[P(y)\ \&\ Q(x)(y)] . \iota y[P(y)\ \&\ Q(x)(y)]$

(based on Elbourne (2008a))

Assuming that the assignment function maps the index 1 to the concept of having one's eldest child leave home and that the pronoun *his* is bound by the universal quantifier, we get the following interpretation for (31).

(34) $[\![$*that moment when his$_2$ eldest child leaves home*$]\!]^{g[2\rightarrow z]} = \lambda Q_{<e,<e,t>>} . \lambda x :$ $\exists!$y[y is a moment when z's eldest child leaves home & Q(x)(y)] . ιy[y is a moment when z's eldest child leaves home & Q(x)(y)]

(35) $[\![R$ *that moment when his$_2$ eldest child leaves home*$]\!]^{g[2\rightarrow z]} = \lambda x :$ $\exists!$y[y is a moment when z's eldest child leaves home & y exemplifies x] . ιy[y is a moment when z's eldest child leaves home & y exemplifies x]

(36) $[\![1\ R$ *that moment when his$_2$ eldest child leaves home*$]\!]^{g[2\rightarrow z]}$ is defined iff $\exists!$y[y is a moment when z's eldest child leaves home & y exemplifies the concept of having one's eldest child leave home]

[8] I leave aside the question of how the domain of this function should be restricted. Presumably the function should be defined not for all pairs of individuals.

if defined, $[\![1\ R\ \textit{that moment when his}_2\ \textit{eldest child leaves home}]\!]^{g[2\rightarrow z]} = \iota$y[y is a moment when z's eldest child leaves home & y exemplifies the concept of having one's eldest child leave home]

While the idea of having eldest children leave home is the same for all fathers on this analysis (which is intuitively okay), for every father there will be a different unique moment which exemplifies this idea, that is, the moment such that his eldest child leaves home. As shown above in (27) for the general case, the default meaning of R would produce a counterintuitive reading that there is a particular moment (to which the index points) at which all fathers' eldest children left their respective homes. To reiterate the point made above, Elbourne (2008a) captures covariation by introducing non-functional varieties of R which end up relating an individual picked out by the index to multiple individuals which have the properties depicted by the index individual or exemplify the index individual.

Another case which, for Elbourne (2008a), involves a non-functional R is given below.

(Context of King (2001:74): the speaker nods in the direction of a screen showing a scene from a film in which a professor is fondly perusing his finest piece of published work)

(37) Every professor cherishes [1 R that publication of his].

Elbourne (2008a:444) proposes that in (37), the index points at the scene towards which the speaker gestures, and R denotes a function mapping an individual to a function which maps an individual to truth in case it has "the qualities depicted by" the first argument.

Crucially, the relation between scenes and individuals which have qualities depicted in a given scene is not functional: for a given scene there may be more than one individual which has the qualities depicted in the scene. R can be taken to have the following semantics.

(38) $[\![R]\!] = \lambda$x . λy . y has the qualities depicted in x

This means that depending on the value of the variable denoted by the possessive pronoun *his* in (37), the whole eNP will denote different publications. In the case at hand, which

involves a scene showing a professor perusing his favourite publication, $[\![R]\!](g(1))$ is a set of publications which are their owner's favourites.

The interpretation of the demonstrative-eNP is given in (39), where z is the variable bound by the universal quantifier. Once again, unlike in the case of a functional R, the denotation of this demonstrative-eNP is identical to the index value. The fact that the eNP denotation covaries with a universally bound variable *his* (for every professor there is a different publication of the relevant kind) therefore receives explanation.

(39) $[\![D_s]\!]([\![\textit{publication of his}_2]\!]^{g[2\rightarrow z]}) = \lambda$Q . λx : $\exists$!y[y is a publication of z & Q(x)(y)] . ιy[y is a publication of z & Q(x)(y)]

(40) $[\![D_s]\!]([\![\textit{publication of his}_2]\!]^{g[2\rightarrow z]})([\![R]\!]) = \lambda$x : $\exists$!y[y is a publication of z & y has the qualities depicted in x] . ιy[y is a publication of z & y has the qualities depicted in x]

Finally, after substituting the index value g(1) for the argument x, we get,

(41) $[\![1\ \textit{R that publication of his}_2]\!]^{g[2\rightarrow z]}$ is defined iff $\exists$!y[y is a publication of z & y has the qualities depicted in g(1)]
if defined, $[\![1\ \textit{R that publication of his}_2]\!]^{g[2\rightarrow z]} = \iota$y[y is a publication of z & y has the qualities depicted in g(1)]

Assuming that in the case at hand the scene g(1) depicts an object related to its owner in a particular way, for an object to have the qualities depicted in g(1) amounts to it being related to its owner in the same way the object in g(1) is related to its owner (i.e. as a favourite).

3.3.3 Problems with R as a variable

As illustrated in the previous section, Elbourne (2008a) can manipulate the relation between the index value and the denotation of a demonstrative-eNP by manipulating the

semantics of R. In particular, assigning to R a non-functional relation makes it possible to capture "quantifying in" cases whereby the denotation of an eNP covaries as that of a "regular" definite expression. As schematized in (20) in the beginning of the section, non-functionality of a relation is crucial for capturing covariation in Elbourne's model. Functional relations of identity (an individual is related to the individual it is identical to) or authorship (an individual is related to its unique author) or motherhood (an individual is related to his/her unique mother) and so on are not compatible with interpretations requiring covariation, since all of them would anchor the denotation of strong- and demonstrative-eNPs to a unique individual related in the way specified to the individual picked out by the index.

This approach, while allowing us to capture the shift from directly to non-directly referential behaviour of strong-eNPs, overgenerates in that it in principle allows for values of R that are not actually attested. It is for this reason that F. Schwarz (2009) explicitly rejects the option of having a free variable over relations, namely, putting aside non-functional relations for a moment, Elbourne's (2008) solution predicts unattested functional anaphor-antecedent relations. Recall that in (28) we had an example of R denoting a functional relation of authorship. Suppose R can assume such a meaning in case the relation of authorship has been made prominent in the context. Then we expect for it to be possible to use the strong article in contexts such as the ones schematically given below, where the strong-eNP would denote an individual related by the relevant relation to the individual picked by the index (which has an antecedent).

(42) ...a novel/poem/story$_1$ ... [1 R det$_s$ novelist/poet/writer] ...

However, this turns out not to be possible. F. Schwarz (2009) points out that, for instance, in Standard German *Autor* 'author' cannot be replaced with *Schriftsteller* 'novelist', as the examples below illustrate. That is, a strong-eNP can be related to its antecedent by

the functional relation of authorship only in case it contains a noun denoting the named relation.

(43) Hans entdeckte in der Bibliothek einen **Roman** über den Hudson.
Hans discovered in the library a novel about det Hudson.
Dabei fiel ihm ein, dass er vor langer Zeit einmal einen
In the process remembered he.DAT PRT that he a long time ago once a
Vortrag #vom/von **dem Autor** besucht hatte.
lecture by.det$_w$/by det$_s$ 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.'

(Standard German, F. Schwarz (2009:229–230))

(44) #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 PRT that he a long time ago once a
Vortrag von dem **Schriftsteller** besucht hatte.
lecture by det$_s$ 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.'

(Standard German, F. Schwarz (2009:229–230))

That is, on the hypothesis that in (43) we deal with anaphora, that is, an index in the second eNP picking out the referent of the first eNP, it is impossible to establish an anaphoric link between eNP with 'novelist' and eNP with 'novel' (44), despite the fact that the referent of the the latter is conceivably related to the referent of the former by the relation of authorship or 'having been written by'. But this option is predicted to be available on the analysis which allows R to take on any relational meanings. One also could not argue that the relation of authorship is not pragmatically prominent: undoubtedly it is the first one to come to mind given the pair novel – novelist.

F. Schwarz (2009:231) further notes that "if the relation [between the referent of the eNP and the index value – A.S.] were introduced as the contextually supplied value of [R]-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?" The bottom line is that the relation between the denotation of a strong-eNP and the antecedent cannot be just of any kind, but depends on the nominal predicate.

In contrast, Elbourne (2008a) predicts that the nature of the relational component can be much more versatile, since in his model it corresponds to a free variable over relations. Indeed, the main question that Elbourne's (2008) treatment of "quantifying in" cases brings about is not whether the mechanism proposed does the job of capturing the right readings, which it does, but under what conditions this mechanism kicks in. Specifically, under which conditions is R assigned a non-functional value? Such a value, if freely available, makes it unclear why we find scopeless behaviour of strong- and demonstrative-eNPs at all. In order not to make the wrong predictions, the distribution of the non-functional R would need to be tightly constrained. Aware of the problem, Elbourne (2008a) emphasizes that by default the semantics of R corresponds to the relation of identity.

> *[U]nless one of a restricted range of pragmatic factors applies, the relational component must be identity. For present purposes, the only pragmatic factor capable of forcing another relational component is the index not satisfying the NP descriptive content.* Elbourne (2008a:441)

For instance, in the case of *Every father dreads that moment when his eldest child leaves home*, Elbourne (2008a) assumes that the index value is a concept (of having one's eldest child leave home) for lack of a visual cue: there is no visible object which can be pointed out. And even if there was such object, the index would not satisfy NP's descriptive content, since *one* contextually given object could not fit a description which involves a bound variable (*moment when his eldest child leaves home* where *his* is bound by a universal quantifier).

In fact, Elbourne (2008a:444) suggests that it is the covarying reading that actually forces a non-default semantics of R and a special interpretation of an index.

> *Since we are presented with these examples (such as Every father... – A.S.) out of the blue [...] the deictic component cannot zero in on any obvious visual clue [...]; and since we are dealing with covariation, the index cannot be the interpretation.*

Presumably, in the context of eNP involving a bound variable, R cannot be either the relation of identity or any other *functional* relation which anchors the denotation of the whole eNP to a contextually given individual. I have discussed two such non-functional relations: exemplification ($\lambda x\ .\ \lambda y\ .$ *y exemplifies x*) and "likeness" $\lambda x\ .\ \lambda y\ .$ *y has properties depicted by x*. However, knowing that the relevant relation cannot be that of identity, and, more generally, a functional relation (e.g. 'the author of', 'the mother of', 'the mayor of' etc.), does not predict what kind of relation it is going to be.

Another problematic issue is how the value of the index is determined. Interestingly, in the *Every father...* example, the value of the index (concept of having's one child leave home) happens to coincide with the content of the restrictive relative clause. Moreover, one may notice that this is a systematic phenomenon. Here is a couple of other examples of covariation from King (2001).

(45) Every man eagerly looks forward to that day when he retires.

(46) Most avid snow skiers remember that first black diamond run they attempted to ski.

Conceivably, on Elbourne's (2008) analysis (45) would involve an index picking out the concept of one's retiring, while in (46) the index would point to the concept of being skied. The property of individuals to exemplify such a concept approximates very closely the meaning of the RRC involved.

Finally, it can also be observed that the presence of a restrictive relative clause systematically makes an anaphoric/deictic antecedent unnecessary, while in the absence of an RRC it becomes much more difficult to accommodate the existence of a suitable antecedent and a relation between the antecedent and the denotation of a strong- or demonstrative-eNP. This is illustrated below for English demonstrative-eNPs. The same holds for Austro-Bavarian.

(47) a. Nina chose that bag. [# unless there is an anaphoric or deictic antecedent]

b. Nina chose that bag which Karl recommended to her. [can be used in any context]

In what follows I develop a structural solution to the problem of covariation/loss of scopelessness which reflects the crucial role of restrictive relative clauses (henceforth RRCs). In a nutshell, I propose that there is a functional head R which can take either an individual pronoun or an RRC as its complement.

3.4 Relational projection in strong-eNPs

Elbourne's (2008) proposal that the LF of a demonstrative-eNP involves a variable over relational predicates R which mediates the relation between the individual picked out by the index and the denotation of the eNP allows us to capture those uses of demonstrative-eNPs where $[\![eNP]\!]$ covaries with an embedded variable. If the only relations available are either identity or a relation lexically denoted by a relational noun, as on F. Schwarz's (2009) proposal, such uses remain unexplained.

However, the conclusion of the previous section was that Elbourne's (2008) proposal does not offer an answer to the question about what restricts the range of variation of R (and hence puts boundaries on covariation). I will propose that an RRC effectively replaces the silent individual pronoun in the LF on a strong-eNP, as in the scheme below repeated from (1). Covariation facts then follow, as well as the fact that the presence of an RRC systematically makes an antecedent unnecessary.

(48) $_{DP}$[D $_{RP}$[i/RRC [R NP]]]

In the next section I motivate the presence of a functional head with a relational semantics in the LF of strong-eNPs which combines with the NP and introduces either a silent pronoun or an RRC as its specifier. Unlike Elbourne's (2008) R variable, the semantics of this head is a constant.

The discussion in this section of the semantics of strong- and demonstrative-eNPs consists of two main parts. I first show that within strong- and demonstrative-eNPs the nominal predicate is subject to an anti-uniqueness presupposition. I then present evidence that RRCs do not form part of the nominal predicate with respect to this presupposition. In section 3.6 I propose that the configuration in (48) captures all the relevant facts. Moreover, the argument leads me to the surprising conclusion that we can do away with the semantic difference between weak and strong articles, as long as we assume that D *spells out* as a strong article in case it takes a relational phrase, RP, as its complement.

3.5 New ingredients for the semantics of strong-eNPs

3.5.1 An anti-uniqueness presupposition

As mentioned in Wiltschko (2012) for Austro-Bavarian, strong articles are incompatible with nominal predicates which denote at most a singleton, such as *hechste Beag* ('highest mountain') and *Präsident von Amerika* ('president of the US'). This is in contrast to the weak article, which is the only grammatical option in this case.

(49) a. da hechste Beag
D$_w$ highest mountain
'the highest mountain'

b. #dea hechste Beag
D$_s$ highest mountain
Intended: 'the highest mountain'

(50) a. da Präsident von Amerika
D$_w$ president of America

'the president of the US'

b. #dea Präsident von Amerika
D$_s$ president of America
Intended: 'the president of the US'

(51) a. da Gebuatstog vo mia
D$_w$ birthday of mine
'the birthday of mine'

b. #dea Gebuatstog vo mia
D$_s$ birthday of mine
Intended: 'the birthday of mine'

The observation is thus that strong articles require the nominal predicate to denote a set larger than a singleton. Notice also that the same holds for English demonstratives, which normally do not combine with nominal predicates which denote at most a singleton, just like indefinite articles and unlike *the*.

(52) a. the/#that/#a highest mountain

b. the/#that/#a president of the US

c. the/#that/#a day of my birth

The examples above, of course, involve "special" NPs in that they denote at most a singleton due either to their lexical properties (superlatives) or the way the world is (*president of the US*). In more ordinary cases, where the nominal predicate in principle could apply to more than one thing, the use of strong articles requires the nominal property not to be assumed to apply to one thing only. This can be illustrated by the following examples which are infelicitous if uttered in a context where it is known that there is only one individual having the nominal property.

(Context: A points to a house (the only one in the immediate surrounding) and asks B,)

(53) Gfoit da s'/#des Haus?
like you det$_w$/det$_s$ house
'Do you like this house?' Wiltschko (2012)

The same is found with English demonstrative-eNPs.

(Context: there is only one car in the household)

(54) #I advise you to take that car.

That is, in order to felicitously use a given strong- or demonstrative-eNP, the conversation participants must assume that the property denoted by the nominal predicate does hold of more than one individual in a given domain. I will treat this requirement as an *anti-uniqueness presupposition*. Consider the following two examples, where the first statement is false, whereas the second sounds bizarre. That demonstratives trigger an anti-uniqueness presupposition straightforwardly explains the perceived infelicity of the (55-b).

(55) a. There are two suns. (false)

b. #That sun is bright. (infelicitous)

The next question of course is what triggers this presupposition. The following is the strong article entry based on Elbourne (2008a). Here the P argument is filled by the denotation of the nominal predicate, Q argument – by the default "identity" $[\![R]\!]$, and the D_s-function is defined only in case there exists a unique individual with the property P identical to the argument-individual.

(56) $[\![D_s]\!] = \lambda P_{<e,t>} . \lambda Q_{<e,<e,t>>} . \lambda x : \exists!y[P(y) \& Q(x)(y)] . \iota y[P(y) \& Q(x)(y)]$

When applied to eNP such as *Buach* 'book', on the LF in (57), this function gives the following output.[9]

(57) [1 [R [D_s book]]]

[9] Recall that for all P and x for which the function is defined, the presupposition $\exists!y[P(y) \& y = x]$ is equivalent to $P(x)$.

(58) $[\![D_s]\!]([\![book]\!])([\![R]\!])(\mathrm{g}(1))$ is defined iff g(1) is a book
if defined, $[\![D_s]\!]([\![book]\!])([\![R]\!])(\mathrm{g}(1)) = \mathrm{g}(1)$

That is, *des Buach* carries a presupposition that the individual picked out by the index is a book. Given (59) it does not matter whether it is assumed that there is only one book or more in the relevant domain. In order to capture the patterns in (49-b)–(51-b), we would need to restrict the domain of the P-argument to properties which hold of more than one individual, which is filled by the nominal predicate. The updated entry then would look as follows.

(59) $[\![D_s]\!] = \lambda \mathrm{P}_{<e,t>} : |\mathrm{P}|>1 \ . \ \lambda \mathrm{Q}_{<e,<e,t>>} \ . \ \lambda \mathrm{x} : \exists!\mathrm{y}[\mathrm{P}(\mathrm{y}) \ \& \ \mathrm{Q}(\mathrm{x})(\mathrm{y})] \ . \ \iota \mathrm{y}[\mathrm{P}(\mathrm{y}) \ \& \ \mathrm{Q}(\mathrm{x})(\mathrm{y})]$

There is, however, another set of data which will show that the semantics of a strong-eNP needs to discriminate between the nominal predicate proper and certain modifiers such as RRCs.

3.5.2 Exemption of RRC from anti-uniqueness

In the previous section it was suggested that strong articles impose an anti-uniqueness requirement on the nominal predicate. I show below that an RRC is not part of the nominal predicate in this respect, and if left as is, (59) makes wrong predictions. Namely, the entry in (59) predicts that if RRCs were mere nominal modifiers, a noun with an RRC denoting a singleton would be incompatible with strong articles/demonstratives, or, schematically,

(60) *D_s [NP + CP] if $|[\![NP]\!] \cap [\![CP_{RRC}]\!]| = 1$

This is not what we find empirically. In the following example the complement of the article, [NP + CP_{RRC}], denotes a singleton, and yet the strong article is not only a possible, but in fact a preferred option.

(61) a. dea Tog an dem i auf 'd Wöd kumma bin
det$_s$ day on which I to det$_w$ world come be
'that day on which I was born'

b. da Tog an dem i auf 'd Wöd kumma bin
det$_w$ day on which I to det$_w$ world come be
'the day on which I was born'

In contrast, in case an NP is assumed to denote a singleton, the strong article cannot normally be used.

(62) Da/#den easte Tog in meim Lebm hot goa ned guad ogfonga
det$_w$/det$_s$ first day in my life has prt not good started
'The first day of my life did not begin well.'

The same can be said about English demonstratives. In examples such as the one below, the intersection of the nominal predicate and its alleged modifier would be a singleton: there can be only one individual satisfying the property of being a day such that I visited Paris for the first time on that day.

(63) I can talk for hours about [**that** [day **when** I visited Paris for the first time]].

That in English a demonstrative can take a [NP + RRC] complement that denotes a singleton is further illustrated in (64).

(64) that/#a/the day on which I was born

This, again, contrasts, with the behaviour of demonstrative-eNPs without RRC.

(65) #That first day of my life was not very good.[10]

[10] Apparently, the sentence improves on a reading which implies a particular emotional attitude towards the referent. This case belongs to the group of apparent violations of the anti-uniqueness requirement (e.g. *That albino gorilla is very dangerous!* when uttered in a context where there is only one albino gorilla, etc.). This phenomenon was also mentioned in Wolter (2006:81). Although I do not offer a full analysis of these cases, my speculation

Unlike RRCs, adjectives are relevant for the anti-uniqueness presupposition. The example in (66-b) is infelicitous in a context where there are just two dogs, since there is only one individual fitting the description *young dog*. In contrast, the fact that there is only one individual fitting the description *dog which is going to be trimmed* in this context does not make (66-c) infelicitous.

(Context: There are two dogs in a house, of different ages.)

(66) a. Feed that dog first.

b. #Feed that young dog first.

c. Feed that dog which is going to be trimmed first.

The fact that strong articles and demonstratives can be used in cases where [NP + RRC] denotes uniquely to suggest that the lexical entry in (59) needs to be revised. If it was the case that the predicate *Tog an dem I auf 'd wöd kumma bin* 'day on which I was born' played the same role in the LF of the strong article as *Präsident von Amerika* 'president of the US' in (50-b) does, the sentence in (61-a) should have been ungrammatical, contrary to fact. The prediction in (60) follows from the hypothesis that RRCs are mere nominal modifiers. It is not borne out, which allows us to abandon the hypothesis. In general terms, the head carrying the presupposition has to have access to the NP to the exclusion of the RRC. On the version of Elbourne's (2008) semantics I have been adopting for strong articles so far, this requires the following additions to the existing LF and a corresponding lexical entry, where the S-argument is supposedly filled by the property denoted by an RRC.

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is that the emphatic effect results precisely from a mismatch between the anti-uniqueness requirement and the context. Informally, the speaker uses an expression that is normally used to "make a selection" out of a set (e.g. *that day...*, *that gorilla...*) to point to the only individual with the relevant property, and the "overuse" of a referring device implies a special emphasis. It is interesting to note that such emotive uses also seem to make demonstrative-eNPs scope-sensitive, as in the following example: *Every author cherishes that first major book contract*. One possible treatment of these cases involves some sort of an "emotive" feature that stands in complementary distribution to the index. Thanks to Florian Schwarz (p.c.) for the discussion of such cases.

(67) [i [[R [D_s NP]] $\mathbf{CP}_{RRC}$]]

(68) $[\![D_s]\!] = \lambda P_{<e,t>} : |P|>1 \,.\, \lambda Q_{<e,<e,t>>} \,.\, \lambda \mathbf{S}_{<e,t>} \,.\, \lambda x : \exists!y[P(y) \,\&\, Q(x)(y)] \,.\, \iota y[P(y) \,\&\, Q(x)(y) \,\&\, S(y)]$

The new lexical entry is, however, highly problematic. First, an RRC is by no means a necessary part of the syntactic structure of strong- and demonstrative-eNPs, and so it is not clear what would happen to the argument slot we have just introduced in the absence of an RRC. Second, both from the syntactic and the semantic points of view, we ended up with a rather cumbersome entity which does not seem to occur anywhere else in the grammar.

The most evident solution to this conundrum is to assume that a silent individual pronoun and an RRC "compete" for the same argument slot and are in fact in complementary distribution. In the next section I will propose to treat Elbourne's (2008) relational component as a functional head in its own right, mediating the relation between the NP and either a silent pronoun or an RRC. This will require very simple lexical entries, while capturing all the anti-uniqueness facts and, what is most important for this chapter, the loss of scopelessness in the presence of an RRC.

3.6 A relational head R

In this section I will show how assuming the following structure for strong- and demonstrative-eNPs captures all the patterns discussed so far and allows to simplify lexical entries to the point of having the same (classic Fregean) entry for the strong and the weak articles. Here the relational head R takes NP as its complement and *either* a silent individual pronoun *or* an RRC as its specifier.

On this LF, the functional head R denotes a function which takes two properties and, if defined, returns a set of individuals with both properties. Crucially, the R-function has a definedness condition which corresponds to the anti-uniqueness requirement with respect to the denotation of the NP.

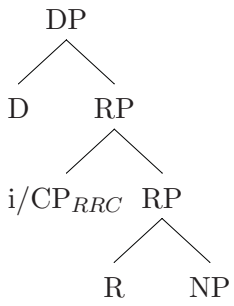

Figure 3–1: LF of a strong-eNP

(69) $[\![R]\!] = \lambda \mathrm{P}_{<e,t>} : |\mathrm{P}|>1 \ . \ \lambda \mathrm{Q}_{<e,t>} \ . \ \lambda \mathrm{y} \ . \ \mathrm{P(y)} \ \& \ \mathrm{Q(y)}$

The case when R takes a silent individual pronoun as its specifier is accommodated by assuming a type-shifting operation *indent* of Partee (1987), which will output a set of individuals identical to g(i), that is, a singleton.[11]

(70) $\mathit{ident}(\mathrm{g(i)}) = \lambda \mathrm{x} \ . \ \mathrm{x} = \mathrm{g}(1)$

In fact, Elbourne (2008a) assumes a somewhat similar constituency, [D [R i]], for simple pronouns, which he treats as demonstratives minus NP and distal components. The only reason to have i and R as separate constituents in the case of demonstratives, [[[D i] R] NP], is because it is "useful to have direct access to the index in order to deal with proximal and distal features...", Elbourne (2008a: 430). Technically, the D-function introduces a presupposition that i is either close or far from the speaker. For the treatment of strong articles, and also of demonstratives with relative clauses, this issue seems to be of little concern since distal/proximal distinction is neutralized in these cases.[12]

[11] For instance, Elbourne (2008b) makes an extensive use of this operation to capture various uses of personal pronouns.

[12] In order to cover demonstratives proper in English I would have to relegate the proximal/distal feature to the semantics of R, which would come in two "flavours", denoting functions defined for individuals that are either near the speaker or far from the speaker.

Notice that on the LF in Fig. 3.6, D can have the weak-article semantics in both weak- and strong-eNP, and the strong article can be taken to be a spellout of D in the context of RP. Below is a sketch of a spellout rule for D in the notation used in the Distributed Morphology model. The less specified weak forms appear in all contexts except when D takes RP as its complement. The morphosyntactic feature [+DEF] semantically corresponds to a Fregean definite.

(71) a. [+DEF] ↔ 'weak forms'

b. [+DEF] ↔ 'strong forms'/RP

All grounds can now be covered with a single D entry corresponding to a "plain" definite article (for English) or a weak article (for German varieties), as in (72).[13]

(72) $[\![D_w]\!] = \lambda \mathrm{P}_{<e,t>} : \exists!\mathrm{x}[\mathrm{P(x)}] \; . \; \iota\mathrm{x}[\mathrm{P(x)}]$

To illustrate the proposal, let us consider *that picture (which) Elsa made* (using English for clarity). Let us take a context where the NP is assumed not to denote uniquely. The whole structure then receives the following interpretation, assuming that CP denotes a property of individuals resulting from lambda-abstraction over the relativization site as a consequence of the operator movement.

(73) [OP_1 λ_1 Elsa made t_1 [R picture]]

(74) $[\![R]\!]([\![picture]\!])([\![OP_1\ \lambda_1\ Elsa\ made\ t_1]\!]^g)$ is defined iff $|[\![picture]\!]|>1$
if defined, $[\![R]\!]([\![picture]\!])([\![OP_1\ \lambda_1\ Elsa\ made\ t_1]\!]^g) = \lambda$x . x is a picture and Elsa made x

[13] Of course, as is usual in the case of Fregean definites, we would need to supplement this entry with some domain restriction machinery.

The idea that an RRC can play a special role in a definite expression is not new. Bach and Cooper (1978) defended on semantic grounds the then-mainstream hypothesis that D forms a constituent with NP to the exclusion of RRC ([[D NP] RRC]). Although not assuming that kind of constituency, my proposal incorporates their insight that the relation between RRC and NP can be "mediated" by a head which is not part of either projection. Instead of D_s, $[\![NP]\!]$ and $[\![RRC]\!]$ are now co-arguments of the R-function. A similar intuition is expressed in the proposals of Sternefeld (2008), Larson and Yamakido (2008), and Blümel (2011), who assume ${}_{DP}$[[D RRC] NP] (for German), ${}_{DP}$[NP [D RRC]] (for Persian) and ${}_{nP}$[[D RRC] nP] (for German *derjenig* determiner, to be discussed later) constituency respectively.

Likewise, F. Schwarz (2009: 268) tentatively suggests the option of treating RRC as another argument of D_s.[14]

> *One possibility [...] would be to assume a higher position for the relative, e.g., by treating it as an optional argument of the determiner [...] 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.*

As is clear from the quote, the suggestion is to have the RRC as D_s's argument *in addition* to the index. However, an already mentioned effect of RRCs on the behaviour of strong-eNPs (in addition to licensing "quantifying in" uses and wh-subextraction) is that strong-eNPs with RRCs do not need an antecedent. This is in contrast to strong-eNPs without RRCs whose distribution is entirely dependent on the presence of an antecedent-eNP in the previous discourse. This is exactly why F. Schwarz (2009:268) mentions "accommodation of the relevant individual". On the proposal I have just outlined no such accommodation is needed, since the index is simply not there. We get it all at once: independence from

[14] F. Schwarz (2009) discusses this question with respect to the distribution of the two articles with relative clauses. I discuss this issue in chapter 4.

the presence of an antecedent, exemption from the anti-uniqueness requirement, and, as I illustrate in the next two sections, uses involving covariation and wh-subextraction repair.

3.7 Covariation: analysis

This chapter began with the discussion of "quantifying in" uses of strong- and demonstrative-eNPs and the role of RRCs in this phenomenon, which was left unnoticed on previous accounts.[15] In this section I show how the proposal that an RRC can replace a silent individual pronoun in the specifier of the relational head R captures the fact that RRCs enable strong- and demonstrative-eNPs to covary with an embedded variable, which includes licensing of "quantifying in" uses and wh-subextraction.

3.7.1 Quantifying in made possible by RRC

On the hypothesis that an RRC replaces a silent individual pronoun, it is expected that the RRC makes it possible for the denotation of strong-eNPs to covary. The simple reason is that, in the absence of i, a strong-eNP is no longer a directly referential expression in the sense that its denotation depends only on the contextually provided variable assignment, and hence is expected to behave like a Fregean definite. If so, the denotation of a strong-eNP that contains an operator-bound variable is expected to covary with that variable. This analysis derives the observation made, for instance, in Tsao (1977:190), that with modifiers such as a relative clause, the demonstrative loses much of its deictic force in English and becomes more like the definite article.

First, recall that the denotation of a strong-eNP by default is insensitive to the presence of operators which cannot be assumed to directly bind the index. This is illustrated with

[15] Wolter (2007) discusses a related effect, namely that postnominal modifiers such as relative clauses make available opaque interpretations for demonstrative-eNPs in modal contexts. This series of facts fits nicely with the proposal developed here that RRCs essentially turn demonstrative-eNPs into regular Fregean definites (modulo the anti-uniqueness presupposition).

an example below, repeated from (2), where the only available reading is that Otto rents some specific house every year. There is no reading whereby it is a different house each time, corresponding to the situations quantified over by *jedn somma* 'every year'.

(Previous discourse: Every year one house on the seaside remains unrented.)

(75) Jedn Somma mietet si da Otto des Haus.
every summer rents himself det_w Otto det_s house
'Every summer Otto rents that house.' (The same particular house every year.)

However, once a strong-eNP contains RRC, the scopelessness goes away. In the following example there can be a different house every summer, as long as each time it is such that nobody wants it.

(Previous discourse: Every year one house on the seaside remains unrented.)

(76) Jedn Somma mietet si da Otto des Haus [wos neamd ondara wü].
every summer rents himself det_w otto det_s house comp nobody else wants
'Every summer Otto rents himself that house that nobody wants.' (Can be a different house every year.)

This example is especially important since it does not involve a pronoun which would require a bound interpretation. While Elbourne (2008a) suggested that R receives non-functional values which allow for covariation in the contexts forcing covariation, the case in (76) seems to be neutral in this respect.

The pattern is further illustrated with the pair of examples below. Example (77) can only be taken to mean that there is a particular novel which all boys read twice. This contrasts with (78) which can also mean that there were different novels for each boy.

(Previous discourse: Every boy in our class had to read a novel yesterday.)

(77) Stö da voa, a jeda Bua hat den Roman zwa moi glesn
imagine yourself prt a every boy has det_s novel two times read
'Imagine, every boy read that novel twice.' (The same novel for every boy.)

(Previous discourse: Every boy in our class had to read a novel yesterday.)

(78) Stö da voa, a jeda Bua hot den Roman [wos a si ausgsuacht
imagine yourself prt a every boy has det_s novel comp he himself chosen
hot] zwa moi glesn.
has two times read
'Imagine, every boy read that novel which he chose twice.' (A different novel for each boy.)

The example in (78) is a "quantifying in" use of King (2001) which are special cases of the eNP denotation covarying, whereby a quantifier binds into the eNP. Compare (78) with King's (2001) example in (79) in its Austro-Bavarian version.

(79) A jeda Vota fiacht si voa dem Moment wenn s' ödeste Kind
a every father dreads refl for det_s.DAT moment when det_w eldest child
ausziagt.
moves.out
'Every father dreads that moment when his eldest child moves out.'

The general pattern is that an RRC makes covariation available for a strong-eNP. On the proposal I have developed, this is an expected result, since an RRC "plugs into" the LF of the strong-eNP instead of a silent individual pronoun. Let us see how exactly replacing i with RRC in the LF of the strong-eNP makes strong- and demonstrative-eNP lose its scopelessness and therefore licenses covariation.

Below I illustrate the semantic contribution of an RRC to the interpretation of strong- and demonstrative-eNPs with the example in (80).

(Previous discourse: there are three kids, and Marta and Hans each wrote a short story about each child.)

(80) A jeda Bua lest die Gschicht [wos da Hons üba eam gschriem hot].
a every boy read det_s story comp det_w Hans about him written has
'Every boy read that story which Hans wrote about him.'

I assume the following LF for this sentence.

(81) Every boy$_2$ λ_2 t$_2$ read [D [[OP$_1$ λ_1 that Hans wrote t$_1$ about him$_2$][R story]]]

Again, for the current discussion I assume a simple predicative analysis of RRCs whereby they denote properties obtained as a result of a lambda abstraction over the relativization site. We get the following denotation for the RRC, where y is bound by the universal quantifier higher up in the structure.

(82) λx $[\![Hans\ wrote\ t_1\ about\ him_2]\!]^{g[1\rightarrow x;2\rightarrow y]}$ = λx . Hans wrote x about y

Assuming the semantics of R in (69), repeated below, whereby it is a function taking two $< e, t >$-type arguments, the [R NP] part of the object eNP receives the following interpretation.

(83) $[\![R]\!]$ = λP$_{<e,t>}$: |P|>1 . λQ$_{<e,t>}$. λy . P(y) & Q(y)

(84) $[\![R]\!]([\![story]\!])$ is defined iff $|[\![story]\!]|$>1
if defined, $[\![R]\!]([\![story]\!])$ = λQ$_{<e,t>}$. ιx[x is a story & Q(x)]

Substituting (82) for the second argument Q, we get,

(85) $[\![R]\!]([\![story]\!])(\lambda x\ [\![Hans\ wrote\ t_1\ about\ him_2]\!]^{g[1\rightarrow x;2\rightarrow y]})$ is defined iff $|[\![story]\!]|$>1
if defined, $[\![R]\!]([\![story]\!])(\lambda x\ [\![Hans\ wrote\ t_1\ about\ him_2]\!]^{g[1\rightarrow x;2\rightarrow y]})$ = λx . x is a story & Hans wrote x about y

The denotation of the whole strong-eNP is given below.

(86) $[\![D]\!]$(85) is defined iff $|[\![story]\!]|$>1 & $\exists$!x[x is a story & Hans wrote x about y]
if defined, $[\![D]\!]$(85) = ιx[x is a story about y & Hans wrote x about y]

There is nothing to prevent the denotation of the strong-eNP from covarying together with the quantifier-bound variable y.

As before, the presupposition of the object eNP becomes a definedness condition of the function denoted by the lambda-abstract over TP. Given this, the interpretation of the TP *likes that story about him that Hans wrote* is as follows,

(87) $[\![\lambda_2\ t_2\ read\ D\ R\ story\ OP_1\ \lambda_1\ that\ Hans\ wrote\ t_1\ about\ him_2]\!]^g$ is defined iff
$|[\![story]\!]|>1$
if defined, $[\![\lambda_2\ t_2\ read\ D\ R\ story\ OP_1\ \lambda_1\ that\ Hans\ wrote\ t_1\ about\ him_2]\!]^g = \lambda$y : $\exists!$x[x is a book about y & Hans wrote x] . y likes ιx[x is a book about y & Hans wrote x]

Thus, it falls out of my proposal that "quantifying in" uses, which require the strong-eNP denotation to covary with an embedded variable, are made available in the presence of RRC.

A general prediction is that in the presence of RRC strong-eNP will behave as Fregean definites in all contexts. In particular, wh-subextraction out of strong- and demonstrative-eNPs should be available in the presence of an RRC, since it is available for "simple" Fregean definites. That this is the case was already mentioned in chapter 2, and in section 3.7.2 I just give it some more discussion in light of the new architecture of a strong-eNP, whereby $[\![RRC]\!]$ functions as one of the arguments of the R-function.

3.7.2 Wh-subextraction repair

That the presence of an RRC in the LF of a strong article turns a strong-eNP essentially into a Fregean definite and enables it to-vary with a quantifier bound variable immediately explains why the presence of an RRC repairs wh-subextraction out of a strong-eNP. I repeat below the relevant example from chapter 2.

(88) Vo wem hot da Hons [des Possbüldl t [was a jo söwa gmocht hot]]
of whom has det_w Hans det_s passport.picture t that he prt himself made has
brocht?
brought
'Who did Hans bring that picture of that he made himself?'

Skipping intermediate compositional steps, which are essentially parallel to those in (82)–(85), we obtain the following denotation of the lambda-abstract over TP which then serves as an argument of the wh-function.

(89) $[\![\lambda_1$ *Hans brought D R picture of* t_1 *OP*$_2$ λ_2 *that he*$_1$ *made* $t_2]\!]^g$ is defined iff
$|[\![$*picture of* $t_1]\!]^{g[1\rightarrow y]}|>1$
if defined, $[\![\lambda_1$ *Hans brought D R picture of* t_1 *OP*$_2$ λ_2 *that he*$_1$ *made* $t_2]\!]^g = \lambda$y : ∃!x[x is a picture of y & y made x] . Hans brought ιx[x is a picture of y & y made x]

This is just a "normal" denotation of a lambda-abstract over TP which we saw in chapter 2 in cases of licit wh-subextraction out of a weak-eNP. Specifically, unlike lambda-abstracts resulting from wh-subextraction out of strong-eNPs, this one does not denote a constant function, which would map all the individuals in the domain of the wh-word to the same truth value in a given world.

Summing up, the reason an RRC licenses covariation-requiring uses of strong-eNPs is because it replaces the "default" argument of R, the silent individual pronoun. The elimination of the index makes a strong-eNP lose its scopelessness, that is, its insensitivity to operators. For the same reason, an RRC licenses wh-subextraction out of a strong-eNP: wh-subextraction requires that the denotation of the eNP-of-extraction covary with the wh-bound trace (to make for different answer-propositions), and this is possible for Fregean definites.

This proposal makes it unnecessary to appeal to special non-functional values of R which emerge only in the contexts of covariation. In other words, it is the presence of an RRC which makes covariation possible, rather than a covariation scenario triggering a special interpretation for the relational component and the index, as on Elbourne's (2008) original proposal.

3.8 Lexical R: relational nouns and *-jenig*

One may have noticed that while the semantic complementarity of RRCs and silent individual pronouns was forced upon us by the facts (the NP-argument is required to be separated from the CP_{rrc}-argument to capture anti-uniqueness, and it was undesirable to have an optional argument slot for the RRC), strictly speaking, this could have been done by modifying the LF and the D-entry along the following lines. This solution does not require any reference to a relational component.

(90) $[CP_{RRC}/i\ [D\ NP]]$

(91) $[\![D_s]\!] = \lambda P_{<e,t>} : |P|>1\ .\ \lambda \mathbf{Q}_{<e,t>} : \exists!y[P(y)\ \&\ Q(y)]\ .\ \iota y[P(y)\ \&\ Q(y)]$

However, in this section I show that having a relational head allows us to account for an additional important dataset, namely cases where a strong-eNP involves a relation-denoting noun with its first argument slot filled by an overt or implicit pronoun. Namely, I propose that lexical items with relational semantics such as relational nouns can be merged in place of R. In these cases R can be "seen".

3.8.1 Relational nouns as R

As discussed in section 3.3, one of F. Schwarz's (2009) central arguments against having an object-language relational component is based on the cases of relational anaphora: strong-eNPs with relational nouns such as *Autor* 'author' cannot have a referent that would stand in a different relation to its antecedent than that denoted by the noun. I repeat the relevant examples from (43) and (44).

(92) Hans entdeckte in der Bibliothek einen **Roman** über den Hudson.
Hans discovered in the library a novel about det Hudson.
Dabei fiel ihm ein, dass er vor langer Zeit einmal einen
In the process remembered he.DAT PRT that he a long time ago once a
Vortrag #vom/von dem **Autor** besucht hatte.
lecture by.det_w/by det_s 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.'

(Standard German, F. Schwarz (2009:229-230))

(93) #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 PRT that he a long time ago once a
Vortrag von dem **Schriftsteller** besucht hatte.
lecture by det_s 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.'

(Standard German, F. Schwarz (2009:229-230))

This is unexpected if the semantics of the relational component is totally independent of the semantics of the head noun. For this reason F. Schwarz (2009) proposes a relational version of D_s which denotes a function taking an argument of type $< e, < e, t >>$ (denotation of the relational noun) and an individual and returns a unique individual which stands to the argument individual in the relation denoted by the relational noun. This approach assumes two semantically different strong articles. As a reminder, the "regular" F. Schwarz's (2009) semantics of D_s is as follows,

(94) $[\![D_s]\!] = \lambda \text{P}_{<e,t>} \, . \, \lambda \text{y} : \text{P(y)} \, . \, \text{y}$ (based on F. Schwarz (2009))

In the denotation of the relational version in (95), Q variable ranges over relations between individuals (denotations of relational nominals such as *Autor* 'author'). The function denoted by the relational strong article takes a relation Q, an individual argument, and returns a unique individual which stands in the relation Q to the argument individual. Q(y) is a

characteristic function of a set of individuals who are authors of y: Q(y)(x) is true just in case x is the author of y.[16]

(95) $[\![D_{rel}]\!] = \lambda Q_{<e,<e,t>>}$. λy : $\exists$!x[Q(y)(x)] . ιx[Q(y)(x)] based on F. Schwarz (2009)

Let us consider semantic composition of a strong-eNP involving a relational strong article.

(96) [1 [des$_{rel}$ Autor]]

(97) $[\![D_s]\!]([\![author]\!])$(g(1)) is defined iff $\exists$!x[x is the author of g(1)]
if defined, $[\![D_s]\!]([\![author]\!])$(g(1)) = ιx[x is the author of g(1)]

Unlike in the default case where the denotation of the strong-eNP equals the value of the individual argument, in (95) a strong-eNP ends up denoting an individual who stands in a particular relation (specified by the relational noun) to the individual argument (eventually supplied by the index). The shift in the semantics of D$_s$ is triggered by the presence of a relational noun.

On the current approach, which assumes the presence of a relational functional head, it is possible to unify both insights: that the relational component is a separate object-language element and that a relational noun, if present, determines the relevant relation. Namely, I propose that the relational noun can be merged as R in the LF of a strong article. The resulting LF is as follows.

(98) [D [i author]]

(99) $[\![author]\!] = \lambda$x . λy . y is the author of x

[16] The original version looks as follows $[\![D_{rel}]\!] = \lambda Q_{<e,<e,t>>}$. λz : $\exists !x[Q(y)(x)\ \&\ y = z]$. $\iota x[Q(y)(x)\ \&\ y = z]$, which is equivalent to (95) and is presumably meant to highlight that the relevant relation of identity is now between the antecedent referent and the individual standing in the relation Q to the referent of strong-eNP, rather than between the antecedent referent and the referent of strong-eNP itself.

Let us see how this works on an example.

(100) LF [D [1 author]]

(101) $[\![1\ author]\!]^g = \lambda$y . y is the author of g(1)

Assuming that D has a Fregean semantics, introducing uniqueness and existence presuppositions, we have the following denotation for this strong-eNP.

(102) $[\![D\ 1\ author]\!]^g$ is defined iff $\exists!$x[x is the author of g(1)]
if defined $[\![D\ 1\ author]\!]^g = \iota$x[x is the author of g(1)]

This solution allows us to preserve a single lexical entry for the D-head in all occurrences of strong-eNPs.

Strong-eNPs with relational nouns, however, do not behave entirely as would be predicted by an analysis which is assumes the presence of a pronoun picking a relatum referent, at least in Austro-Bavarian. It was mentioned in 3.1 that in the presence of a quantifier over individuals which can be taken to bind the index in a strong-eNP, we get scope-sensitive behaviour. We see this effect in the example below where the quantifier *A jeda Bua* 'every boy' presumably binds the silent individual pronoun in the strong-eNP *dem Buam* 'that boy'.[17]

(Context: It's an orphanage for the boys from where people take the kids on weekends to cheer them up.)

(103) A jeda Bua hot si bei dea Person bedonkt die wos mit **dem** Buam
a every boy has himself to det_w person thanked rel comp with det_s boy
ins Kino gonga is.
in.det_w cinema gone is.
'Every boy thanked the person who went with that boy to the movie.'

[17] The sentence is slightly odd because of the repetition of the NP bua ('boy'). I take this to be an issue unrelated to the problem of scopelessness/scope-sensitivity of strong-eNPs.

However, as (104-b), repeated from (29-b), shows, this is not an option for eNPs involving a relational noun *Autor* 'author'.[18]

(Context: During a book fair authors sign their books.)

(104) a. A jeds Buach is **vom** Autor untaschriem woan.
a every book is by.det$_w$ author signed become
'Every book was signed by the author.'

b. #A jeds Buach is von **dem** Autor untaschriem woan.
a every book is by det$_s$ author signed become
Intended: 'Every book was signed by the author.'

That is, the silent individual pronoun in the strong-eNP *des Autor* 'that author' for some reason cannot be bound by *a jeds Buach* 'every book'.

One possible explanation is that whenever a relational nouns functions as R, there is no silent individual pronoun. That is, only the default R can introduce such a pronoun. In the case of *des Autor* 'that author', the first argument of the function denoted by the noun is existentially closed (under some pragmatically defined conditions), and thus cannot be bound via regular binding.

If this analysis is on the right track, this presents an additional argument against keeping the same structure for all strong-eNPs and simply allowing R to vary freely, as on Elbourne's (2008) proposal; if a relational noun was not replacing R and if there was invariably an individual silent pronoun filling the first argument position of the R-function, there is no obvious reason for why the pronoun cannot be bound in (104-b). That said, on the present

[18] While in Austro-Bavarian this is a strong judgement, judgements differ in Standard German with respect to the grammaticality of the following similar example suggested to me by Florian Schwarz: *Jedes Buch enthielt eine Liste, in der sämtliche weiteren Werke von dem Autor aufgeführt waren* 'Every book contained a list that listed all further works by the author'.

analysis it would still need to be explained why covariation is not made possible via binding of the situational argument in the strong-eNP.[19]

The summary of possible LF's for a strong-eNP is given schematically below.

(105) a. $_{DP}$[D $_{RP}$[i [R NP]]

b. $_{DP}$[D $_{RP}$[RRC [R NP]]

c. $_{DP}$[D $_{RP}$[$\exists$ [$R_{relational\ noun}$]]

Another candidate for the role of the relational component in the LF of strong-eNP is the morpheme *-jenig* which I discuss for Standard German in the next section.

3.8.2 *-jenig* as R

German varieties feature a type of article which is a candidate for spelling out D together with R. In Standard German this is the article *derjenige* ('that one', glossed as d-jenig). A striking fact about the distribution of this article is that the presence of a noun is optional with an RRC, (106), and prohibited with PP, (107), and GenitiveP, (108). *derjenige* is not used with a noun without modifiers.

(106) Dasjenige (Buch) *(das auf dem Tisch liegt) ist blau.
d-jenig book which on the table lies is blue
'The book that is on the table is blue.' (Standard German, Blümel (2011:21))

(107) a. Welchen Jungen hast Du getroffen?
which boy have you met
'Which boy have you met?'

b. Denjenigen (*Jungen) aus Berlin.
d-jenig (*boy) from Berlin
'The one from Berlin'. (Standard German, Blümel (2011:21))

[19] Thanks for Florian Schwarz (p.c.) for bringing up this option. As noted before, I took the situation aspect out of the picture altogether to simplify the discussion.

(108) a. Welchen Ehemann hast Du getroffen?
which husband have you met
'Which husband have you met?'

b. Denjenigen (*Ehemann) meiner Schwester.
d-jenig (*husband) my.GEN sister
'The one of my sister.' (Standard German, Blümel (2011:27))

I propose that *-jenig* has a relational semantics of R, repeated below from (69). That is, it denotes a function taking two $< e, t >$-type arguments and, if the first set is larger than a singleton, returning a property of individuals to be a member of both sets.

(109) $[\![R]\!] = \lambda \mathrm{P}_{et} : |\mathrm{P}|{>}1 \ . \ \lambda \mathrm{Q}_{et} \ . \ \lambda \mathrm{y} \ . \ \mathrm{P(y)} \ \& \ \mathrm{Q(y)}$

The only feature specific to *-jenig* is that the head it realizes takes a pronoun ranging over sets as its first complement, instead of a property-denoting predicate (e.g. a noun). More precisely, we can say that *-jenig* is a spellout of R in case R takes a silent set pronoun as its complement, as semi-formally schematized in (109), where C is a silent pronoun ranging over sets.[20]

(110) a. [R] $\leftrightarrow$ zero

b. [R] $\leftrightarrow$ *jenig*/C

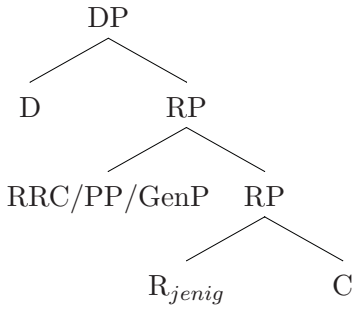

Figure 3–2: eNP with d-jenig

[20] This is just an approximation of a proper spellout rule since I gloss over all the inflectional properties of *jenig* which takes a weak adjectival inflection, Blümel (2011).

Just as predicted by the regular R semantics, *-jenig* imposes an anti-uniqueness constraint on the first argument. As observed in Blümel (2011), d-jenig-eNP is infelicitous if uttered out of the blue, and requires for there to be a contextually salient set out of which the referent can be chosen. In the following example *diejenigen Bücher* 'those books' is infelicitous unless the previous context contains a mention of a set of books to which the referent of the eNP in question belongs. In this case those are the books that were being thrown away.

(111) ?*(Im Kanzleramt wurden ein paar Bücher weggeschmissen.) Die
in.det$_w$ chancellor.office were a couple books dumped the
Kanzlerin hat diejenigen Bücher, die sie behalten wollte, gerettet.
chancellor has d-jenig books which she keep wanted saved
'A couple books were thrown away in the chancellor's office. The chancellor saved the books that she wanted to keep.'

(Standard German, Blümel (2011:27))

3.9 Conclusions

I proposed a novel account of how strong- and demonstrative-eNPs lose their scopelessness. The solution, namely that scopelessness goes away when an RRC or an overt argument of a relational noun replaces a silent individual pronoun, is entirely structural. Assuming the presence of a relational head R which can introduce either a pronoun or an RRC and which triggers the anti-uniqueness presupposition covers a wide range of semantic effects: the loss of direct referentiality and "quantifying in" uses, wh-subextraction repair, the ban on singleton-denoting NPs in strong- and demonstrative-eNPs, and the exemption of RRC from this ban.[21] Unrelated to these phenomena, the hypothesis that a relational

[21] Wolter (2006:80–81) proposes a different analysis of the anti-uniqueness effect: a demonstrative, which is interpreted with respect to a "non-default situation" (i.e. a situation different from the main predicate situation) is dispreferred in case a definite article can be used, which is a less marked form as it is interpreted with respect to a default situation.

noun can function as R explains a series of intricate facts which involve the use of strong articles in cases of relational anaphora, the possibility of "quantifying in" when a relational noun has an overt pronominal argument, as well as the use of morphologically complex d-jenig forms. Assuming the R semantic for *jenig* fully accounts for its distribution.

It follows from this proposal that strong-eNPs are distinct from their weak counterparts in one point: their LF is more articulated in that it contains an "additional" head R corresponding to a relational predicate. Thus the recent proposals that strong articles and demonstratives are semantically more complex that weak articles and *the* respectively are reflected in the syntax.

The next chapter extends this analysis on the patterns of article choice in eNPs with RRC. I show that it makes correct predictions as to the conditions under which the strong article must be chosen.

Finally, there remains a family of cases which may warrant rehabilitation of Elbourne's (2008) treatment of R as a variable, under some limited conditions. The cases in question are those where, descriptively, demonstrative-eNPs seem to be anaphoric to a description or a property introduced in the previous discourse and paraphrasable with *such*, as in the following example, where the demonstrative-eNP *this mood* presumably covaries with *no one*.

Since expressions such as superlative NPs denote uniquely in any situation (including the default situation) if they denote at all, they can be used with the less marked form, which blocks the use of the more marked demonstratives. Without going into a fuller discussion of this approach, of which I became aware only very recently, I will limit myself to a remark that the anti-uniqueness effect is not limited to descriptions which denote uniquely by virtue of their semantics ("semantically unique descriptions", to use Wolter's own term), as (66-b) illustrated. In fact, Wolter (2007:614) observes that explicit contrast is required in the case of bridging uses of demonstratives: *A car drove by. The/*that horn was honking* vs. *A car drove by. The horn was honking. Then another car drove by. That horn was honking even louder.* On the approach advocated here the two types of cases can be treated uniformly. In addition, the anti-uniqueness effect with demonstratives is also observed in languages without definite articles, which makes a competition-based approach less straightforward.

(112) We all had mornings when you don't feel like getting out of bed. Of course, no one wants to stay in this mood for the whole day.

One approach to such cases is to allow R to be anaphoric to a previously introduced property.[22] At this point it is not entirely clear for me where the boundaries of this pattern are and whether it is the same for English demonstrative-eNPs and Austro-Bavarian strong-eNPs. For instance, in the following example, where the previous discourse seemingly specifies the relevant property, the strong-eNP behaves scopelessly.

(Previous discourse: Hans wrote a story about each boy in the class.)

(113) A jeda Bua lest **die** Gschicht.
a every boy read $\det_s$ story
'Every boy read that story.'

A further complication is that covariation becomes possible if a strong-eNP contains a PP, as the following example illustrates.[23]

(Previous discourse: Hans wrote a story about each boy in the class.)

(114) A jeda Bua lest **die** Gschicht üba eam.
a every boy read $\det_s$ story about him
'Every boy read that story about him.'

I am leaving this puzzle for future work.

[22] Thanks to Michael Wagner for the discussion.

[23] Although, as discussed in chapter 4 concerning nominal ellipsis facts in strong-eNPs, RRCs and PPs might play similar structural roles, in which case the covariation facts are as expected.

CHAPTER 4
Article choice with relatives clauses

In this chapter I discuss the ramifications of the proposal laid out in chapter 3 for the distribution of Austro-Bavarian strong and weak definite articles with respect to relative clauses.

As mentioned in F. Schwarz (2009), Wiltschko (2012), and references therein, in the varieties of German that make the distinction between the two series of definite articles, RRCs constitute one of the contexts where the strong article is used. In contrast to the strong article, the weak one in Standard German is characterized as not being able to be used with an RRC. Consider the following example.

(1) Fritz ist jetzt #**im** / in **dem** Haus, das er sich letztes Jahr gebaut hat.
Fritz is now in.det$_w$ / in det$_s$ house that he REFL last year built has
'Fritz is now in the house that he built last year.'

(Standard German, Schwarz 2009:267 citing Hartmann 1978:77)

In Austro-Bavarian and some other varieties of German, such as Vorarlberger, the pattern turns out to be more involved than this. Namely, depending on a context, a given (non-appositive) relative clause can be used either with a strong or with a weak article.[1] This allows for a rather subtle way of testing the proposal about the semantics of strong-eNPs made in chapter 3.

[1] Wiltschko (2012) presents evidence suggesting that RRCs in weak-eNPs should be distinguished both from RRCs in strong-eNPs and from appositive RRCs. In particular, while strong-eNPs with RRCs correspond to two major Prosodic Phrases and allow for RRC extraction, weak-eNPs with RRCs correspond to a single major Prosodic Phrase and do not allow for the RRC extraction. In contrast to these two types, eNPs with appositive RRCs involve a "comma intonation".

In the previous chapter I showed that strong-eNPs with RRCs are just like their weak counterparts in not being directly referential. However, on my proposal their semantics was still different in one aspect: only strong-eNPs were proposed to involve a relational head R which introduces an anti-uniqueness presupposition. In this chapter I test whether assuming this difference is supported by the empirical data about the behaviour of strong- and weak-eNPs with RRCs. Specifically, I test the prediction that strong-eNPs impose different conditions on the Common Ground than weak-eNPs by virtue of the anti-uniqueness presupposition triggered by the presence of the R-head in the LF of the former. I show that the prediction is borne out by the Austro-Bavarian data. The data provide additional evidence for the existence of a grammatical tendency to prefer an LF with a stronger presupposition over an otherwise semantically equivalent LF.

4.1 Predictions

Recall that the main reason to revise Elbourne's (2008) semantics for demonstratives (and its adaptation for Austro-Bavarian strong articles) was the observation that strong- and demonstrative-eNPs, unlike weak- and *the*-eNPs, systematically exclude singleton-denoting NPs. The relevant examples are reproduced below from chapter 3.

(2) a. da hechste Beag
D_w highest mountain
'the highest mountain'

b. #dea hechste Beag
D_s highest mountain
Intended: 'the highest mountain'

(3) a. da Präsident von Amerika
D_w president of America
'the president of the US'

b. #dea Präsident von Amerika
D_s president of America
Intended: 'the president of the US'

(4) a. da Gebuatstog vo mia
D_w birthday of mine
'the birthday of mine'

b. #dea Gebuatstog vo mia
D_s birthday of mine
Intended: 'the birthday of mine'

(5) a. the/#that/#a highest mountain

b. the/#that/#a president of the US

c. the/#that/#a day of my birth

Another observation was that restrictive relative clauses (RRCs), are invisible with respect to this requirement. The following demonstrative-eNP is felicitous even though [NP + RRC] denotes uniquely.

(6) that day on which I was born

If the anti-uniqueness effect is to be encoded as a presupposition introduced by some head in a strong-eNP, this necessitates a lexical entry which would have separate access to the NP and the RRC. The solution proposed in chapter 3 was to have a relational head R which imposes an anti-uniqueness requirement on its first argument, the denotation of the NP. The LF and the semantics of R are repeated below.

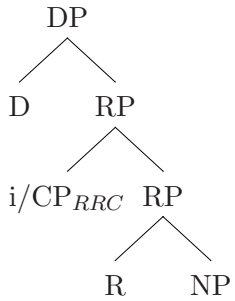

Figure 4–1: LF of a strong-eNP

(7) $[\![R]\!] = \lambda P_{<e,t>} : |P|>1 \ . \ \lambda Q_{<e,t>} \ . \ \lambda y \ . \ P(y) \ \& \ Q(y)$

I also concluded in chapter 3 that, given the LF in Fig. (6), we can have the same lexical entry for both strong and weak articles, namely, one corresponding to a uniqueness presupposing Fregean definite. I tacitly assumed that the anti-uniqueness presupposition of R, just as the uniqueness presupposition of D, holds within a contextually provided domain.

Now, the satisfaction of the anti-uniqueness presupposition, combined with the uniqueness presupposition of D, entails that the set denoted by the NP (must be larger than a singleton) is a proper subset of the set denoted by the whole eNP (must be a singleton). This entails that there are individuals with the nominal property in the relevant domain which do not have the property denoted by the RRC.

The reasoning goes as follows. Given (7), $[\![R\ NP]\!]^s$ (where s is a domain with respect to which the expression is interpreted, to simplify the presentation) is defined if and only if $|[\![NP]\!]^s| > 1$. In turn, assuming the function denoted by the D-head is defined just in case there exists only one individual in a given domain with the property denoted by the complement of D, $[\![D\ RRC\ R\ NP]\!]^s$ is defined if and only if the following two conditions hold.

(8) a. $|[\![RRC\ R\ NP]\!]^s| = 1$ (iff $|[\![RRC]\!]^s \cap [\![NP]\!]^s| = 1$, by (7))

b. $|[\![NP]\!]^s| > 1$ (the condition on [R + NP] having a denotation)

So the strong-eNP has a denotation just in case in a given domain, there is more than one individual with the NP-property, and, among those, there is only one individual with the RRC-property. I will call this *the exhaustivity condition*. The prediction then is that the use of a strong-eNP with an RRC such as *that dog which barks* is felicitous if it is part of the Common Ground that there are dogs (in the relevant domain) that do not bark. Moreover, it should be required to use a strong article in such a Common Ground.

This felicity condition is not predicted for weak-eNPs with RRCs (if such exist) on the assumption that weak-eNPs do not involve the merge of the anti-uniqueness triggering R. $[\![D\ NP\ RCC]\!]^s$ is defined if and only if [NP + RRC] denotes uniquely in s. There are no

conditions with regard to the denotation of the NP alone, namely, whether it denotes a singleton or a set greater than a singleton.

The speaker then has a choice between LFs with different felicity conditions: one which imposes an exhaustivity condition on the Common Ground, Fig. 4–2, and one which does not, Fig. 4–3.[2] It is an empirical matter to see which structure gets chosen and if there is a preference for one of them in a Common Ground that supports the exhaustivity condition.

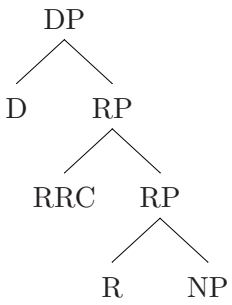

Figure 4–2: Strong-eNP with RRC

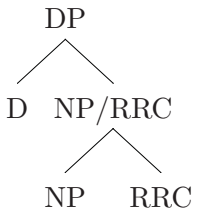

Figure 4–3: Weak-eNP with RRC

We can formulate our expectations based on the study of the choice between the definite and the indefinite articles, originating from Heim (1991). It has been observed that a definite article must be used with NPs which denote uniquely. This is illustrated in the paradigm in (5). Heim (1991) proposed that the choice is driven by the pragmatic preference to

[2] This structure is meant to represent in a simplified manner a family of possible analyses, including raising and matching analyses, all of which do not involve the mediating R head (Bhatt (2002), Hulsey and Sauerland (2006) among others). I will assume a concrete analysis for weak-eNP with RRC later on.

use a presuppositional article rather than an article not carrying a presupposition (labelled the "Maximize Presupposition" principle in the subsequent literature). Chemla (2008:142) formulates Maximize Presupposition at the level of the competition between structures, rather than single lexical items.

(9) *Among a set of alternatives, use the felicitous sentence with the strongest presupposition.*

Percus (2006:23) considers a similar definition of Maximize Presupposition for constituents.

(10) *Alternatives are defined for all constituents. For any constituent, the alternatives consist of all "presuppositionally stronger" items of the same syntactic category.*

In our case the choice is between two constituents of type DP — [D + NP + RRC] and [DP + NP + R + RRC] — where the merge of R in the latter triggers the anti-uniqueness presupposition, which, together with the uniqueness presupposition of D, by Stalnaker's bridging, entails the aforementioned exhaustivity condition on the Common Ground. This condition is stronger than the simple uniqueness condition that the D-head alone imposes on the Common Ground. In what follows I show that the grammar favours a structure which imposes a stronger condition on the Common Ground in case the condition is satisfied.

4.2 Article distribution with RRC: patterns

Concerning definite eNPs with RRCs, Hofherr (2013:32) observes that in all contexts where it is assumed that the nominal property holds of more than one individual in the relevant domain (that is, they satisfy the exhaustivity condition, in my terms), the strong article must be used.[3] Consider the following Autro-Bavarian pair from Wiltschko (2012:

[3] Hofherr (2013) actually uses a special term for RCs used in such contexts, "contrastive RRC".

2). In the context where the conversation participants are considering multiple mailmen, and the RC serves to identify a particular mailman, the strong article must be chosen.

(Context: A and B are having a discussion about the retirement age of mailmen, and other civil servants. A complains: mailmen and garbage collectors retire way too early. For example...)

(11) dea Briaftroga **dea wos** bei uns austrogn hot is jetz in Pension
det$_s$ mailman det$_s$ comp at us delivered has is now in retirement
'the mailman who delivered mail in our neighborhood is now retired.'

(Austro-Bavarian, Wiltschko (2012:2))

In contrast, the weak article can be used in the context where there is a unique mailman under discussion.

(Context: the mailman who has been delivering mail in the neighborhood for the last 10 years is retired. Everyone knows this mailman. A and B have been living in this neighborhood. A tells B.)

(12) Wasst eh, da Briaftroga ((*dea) **wos** bei uns austrogn hot) is jetz in
Know prt det$_w$ mailman det$_s$ comp at us delivered has is now in
Pension.
retirement
'You know, the mailman (who delivered our mail) is now retired.'

(Austro-Bavarian, Wiltschko (2012:2))

With regard to the felicitous use of a strong article in (13), Hofherr (2013:24) comments that it "implies a contrast with another woman in the context", while (14) "implies a contrast with another man in the context".

(13) **Dia** Frouw mit dera da Hans gescht ufs fäscht ku isch, isch fo
det$_s$ woman with whom det$_w$ Hans yesterday to-the party come is is from
Neuseeland.
New.Zeland
'The woman that Hans came to the party with yesterday is from New Zeland.'

(Vorarlberger, Hofherr (2013))

(14) **Dea** Maa wo üsera Bojler gflickt hot, hot gsejt, dass mr d Rohr usfürba
det$_s$ man comp our boiler repaired has has said that we det$_w$ flue sweep
lo söllan.
let should
'The man who repaired our boiler said we should have the flue swept out.'

(Vorarlberger, Hofherr (2013))

To sum up, we have seen that a strong article is used in case the context is compatible with there being more than one individual with the nominal property in the relevant domain. In what follows I explore the hypothesis that there is a pragmatic preference for structures imposing a stronger condition on the Common Ground (if it is satisfied), along the lines of the Maximize Presupposition principle, but extended onto a competition between a structure where a particular head is merged and a structure from which it is absent. The condition in question is the exhaustivity condition: a combination of the effect of the anti-uniqueness presupposition of R and the uniqueness presupposition of D. In the next section I discuss syntactic evidence that that strong- and weak-eNPs with RRC correspond to two different structures.

4.3 Syntactic evidence for two structures

On the proposal I develop in this section, the difference between weak- and strong-eNPs with RRCs boils down to whether the NP is merged with an RRC right away (how that happens is a matter of independent consideration), Fig. 4–4, or whether this relation is mediated by R, Fig. 4–5. The latter structure triggers the anti-uniqueness presupposition, which, combined with the uniqueness presupposition of D, gives rise to the exhaustivity condition on the Common Ground. Below I illustrate the two configurations assuming a raising analysis for weak-eNP of the kind proposed in Hulsey and Sauerland (2006).[4]

[4] The head noun is assumed to have been raised from its merge position as verbal complement to SpecCP, but at LF it reconstructs and is interpreted only in the original position.

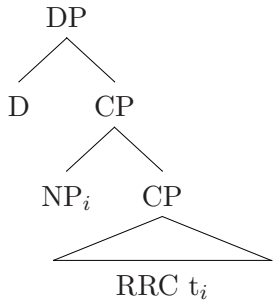

Figure 4–4: Weak-eNP with RRC

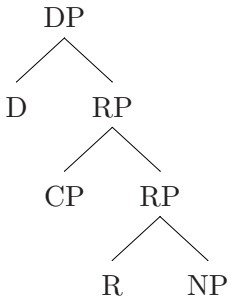

Figure 4–5: Strong-eNP with RRC

It is predicted on this proposal that in a strong-eNP, the NP and RRC correspond to separate constituents, whereas in a weak-eNP they might (depending on the analysis) form a single constituent. The ellipsis data in Austro-Bavarian and one-replacement in English suggest that there is indeed difference in constituency. Ellipsis is possible only in strong- and demonstrative eNPs. While in (15) the string corresponding to a strong-eNP with an elided noun *den dea wos am Tisch steht* ('that which stood on the table') is grammatical, in (16) the string corresponding to a weak-eNP with an elided noun *n' wos am Tisch steht* is not.[5]

[5] As was pointed out to me by Florian Schwarz, the same pattern arises with prepositional phrases, that is, nominal ellipsis is possible in strong-eNPs with PPs and impossible in weak ones. In light of this, the possibility that PPs are also introduced by a relational head R in strong-eNPs is to be investigated.

(15) Die Nina hot den Koab vo da Garage gnumma und I hob **den** dea wos
D_w Nina has det_s basket from det_w garage taken and I have det_s rel comp
am Tisch steht gnumma.
on.det_w table stood taken
'Nina took the basket from the garage and I took that which stood on the table.'

(16) ??Die Nina hot n' Koab vo da Garage gnumma und I hob **n'** *(Koab)
det_w Nina has det_w basket from det_w garage taken and I have det_w (basket)
wos am Tisch steht gnumma.
comp on.det_w table stood taken
'Nina took the basket from the garage and I took the basket that was on the table.'[6]

(Austro-Bavarian)

(17) a. Nina took the basket from the garage and I took **that** which was on the table.

b. Nina took the basket from the garage and I took **the** *(one) which was on the table.

Wiltschko (2012:13) also shows that weak-eNPs with RRCs differ from their strong counterparts with respect to extraposition possibilities: the former do not allow for the RRC extraposition, (18-c), whereas the latter do, (19-c).

(18) a. Wasst eh, da Peter is saua,
know.2SG prt det_w Peda is mad
'Peter is mad...'

b. wei **s** Zimma [wos 's eam gem hom] so kla is
as det_w room comp 'they him given have so small is
'...because they room they gave him is so small.'

c. #wei **s** Zimma so kla is [wos 's eam gem hom]
as det_w room so small is comp 'they him given have

(Austro-Bavarian, Wiltschko (2012:13))

[6] The Austro-Bavarian sentence is imperfect even without nominal ellipsis since the use of the weak-eNP in the second conjunct goes agains the preference for strong-eNP when the contexts makes it clear that there is another object with the nominal property.

(19) a. Wasst eh, da Peda is saua,
know.2SG prt det_w Peter is mad
'Peter is mad...'

b. wei **des** Zimma [wos 's eam gem hom] so kla is
as det_s room comp 'they him given have so small is
'...because they room they gave him is so small.'

c. wei **des** Zimma so kla is [wos 's eam gem hom]
as det_s room so small is comp 'they him given have

(Austro-Bavarian, Wiltschko:2012)

Since the structure in Fig. 4–4 involves a reconstruction of the nominal predicate, it is expected that a configuration which makes a reconstruction impossible (i.e. extraposition) will be ruled out for an eNP which involve this kind of structure. By hypothesis, these are weak-eNPs with RRCs.

In the next section I go through a comparison of the semantic composition of strong- and weak-eNPs with RRCs. I then briefly draw a parallel between the semantic approach developed in this dissertation and Wiltschko's (2012) syntactic analysis of the distribution of strong- and weak-eNPs with RRCs.

4.4 The emergence of the exhaustivity condition

Let us consider again the following example.

(Context: A and B are having a discussion about the retirement age of mailmen, and other civil servants. A complains: mailmen and garbage collectors retire way too early. For example...)

(20) dea Briaftroga **dea wos** bei uns austrogn hot is jetz in Pension
det_s mailman det_s comp at us delivered has is now in retirement
'the mailman who delivered mail in our neighbourhood is now retired.'

(Austro-Bavarian, Wiltschko (2012))

What we want to see is how the presupposition triggered by the merge of R interacts with the context, to the effect that the strong article ends up appearing in cases where

it is assumed that there is more than one member of the NP-set (relative to the relevant domain). I assume the following as an approximation of the relevant LF, replacing *our* with *Elsa* to reduce the number of variables in the presentation.

(21) [D [[OP$_1$ λ_1 (comp) t$_1$ delivered mail in Elsa's neighbourhood] [R mailman]]] is now retired

The [RRC [R NP]] constituent receives the following interpretation.

(22) $[\![R_{rrc}]\!]([\![mailman]\!])([\![OP_1\ \lambda_1\ (comp)\ t_1\ delivered\ mail\ in\ Elsa's\ neighb.]\!]^{g,s})$ is defined iff $|[\![mailman]\!]^{g,s}| > 1$
if defined, $[\![R_{rrc}]\!]([\![mailman]\!])([\![OP_1\ \lambda_1\ (comp)\ t_1\ delivered\ mail\ in\ Elsa's\ neighb.]\!]^{g,s})$
$= \lambda$x . x is a mailman and x delivered mail in Elsa's neighbourhood

This constituent is associated with a presupposition that there is more than one mailman under discussion. The function in (22), if defined, serves as an argument to the D-function, and the whole strong-eNP then can have the following denotation.

(23) $[\![D]\!]^{g,s}$(22) = is defined iff
$|[\![mailman]\!]^{g,s} \cap [\![OP_1\ \lambda_1\ (comp)\ t_1\ delivered\ mail\ in\ Elsa's\ neighb.]\!]^{g,s}| = 1$
& $|[\![mailman]\!]|^{g,s} > 1$
if defined, $[\![D]\!]^{g,s}(22) = \iota$x[x is a mailman and x delivered mail in Elsa's neighbourhood]

For this eNP to be uttered felicitously, it has to be part of the Common Ground that in the relevant domain there are mailmen who did not deliver mail in Elsa's neighbourhood. Finally, the full sentence has the following truth conditions, where s is the domain interpretation parameter.

(24) $[\![(20)]\!]^{g,s}$ is defined iff
$|[\![mailman]\!]^{g,s} \cap [\![OP_1\ \lambda_1\ (comp)\ t_1\ delivered\ mail\ in\ Elsa's\ neighb.]\!]^{g,s}| = 1$

& $|[\![mailman]\!]|^{g,s} > 1$

if defined, $[\![(20)]\!]^{g,s} = \iota$x[x is a mailman and x delivered mail in Elsa's neighbourhood in s] is now retired

It is easy to calculate that a corresponding sentence with a weak-eNP will differ minimally from (24) in that it will not trigger the exhaustivity condition that there are other mailmen in the relevant domain who did not deliver mail in Elsa's neighbourhood. A corresponding LF is given below.

(25) [D [mailman$_1$ [λ_1 . <(Det) mailman>$_1$ delivered mail in Elsa's neighbourhood]]] is now retired

The *<(Det) mailman>*$_1$ constituent is an eNP with a reconstructed noun.[7] It is interpreted as follows, assuming the proposal for trace conversion in Fox (2002:45–46). Trace conversion involves Variable Insertion, which creates a set of individuals with the nominal property and identical to the value of the index assigned to the nominal trace, (26), and Determiner Replacement, which replaces the null determiner with a Fregean definite, (27).

(26) $[\![(Det)\ mailman_1]\!]^g \rightarrow$ (Det)[λy . y is a mailman & y = g(1)]
(where (Det) is a null determiner)

(27) (Det)[λy . y is a mailman & y = g(1)] $\rightarrow [\![D]\!]^{g,s}$([$\lambda$y . y is a mailman & y = g(1)])

Assuming that the index is bound by a operator scoping over the whole RRC, we get the following interpretation for our trace, where x is bound by a higher lambda operator.

(28) $[\![D]\!]^{g,s}$(λy . y is a mailman & y = x)

[7] For reasons to assume NP and not DP reconstruction see Bhatt (2002:70–73).

Because of the uniqueness introduced by D, this expression is defined just in case there exists a unique individual which is a mailman and which is identical to x (∃!y[y is a mailman in s & y = x]). This can be rewritten as a requirement that x is a mailman, since there is always one and only one individual identical to x. The denotation of the reconstructed eNP is then as follows.

(29) $[\![D]\!]^{g,s}(\lambda$y . y is a mailman & y = x) is defined iff x is a mailman in s,
if defined, $[\![D]\!]^{g,s}(\lambda$y . y is a mailman & y = x) = ιy[y is a mailman in s and x = y]

The denotation of the whole complement of D, RRC, is then as follows. The presupposition of D projects as a definedness condition of the RRC-function as a whole.

(30) $[\![\lambda_1 \ < (Det)mailman >_1 \ \ delivered\ mail\ in\ Elsa's\ neighbourhood]\!]^{g,s}$ =
λx : x is a mailman in s . ιy[y is a mailman in s and y = x] delivered mail in Elsa's neighbourhood

This function serves as argument to the D that heads the whole eNP, which results in the following denotation.

$[\![D]\!]^{g,s}$(30) is defined iff ∃!x[x is a mailman in s and x delivered mail in Elsa's neighbourhood]
if defined, $[\![D]\!]^{g,s}$(30) = ιx[x is a mailman in s and x delivered mail in Elsa's neighbourhood]

This expression does not impose on the Common Ground the condition there should be other mailmen in s.

4.5 Wiltschko's (2012) syntactic account

Wiltschko (2012) proposes that strong-eNPs involve an additional structural layer compared to weak-eNPs. Specifically, Wiltschko (2012:10) proposes that D_s c-selects for a little

n, which "forms the basis for contextualization" in that it hosts in its specifier context-sensitive elements such as a contrast set variable C, Fig. 4.5. In contrast, D_w c-selects NP directly, not nP, Fig. 4.5.[8]

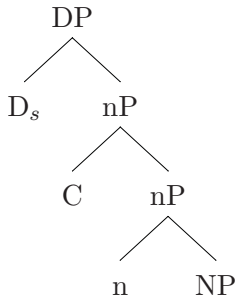

Figure 4–6: Wiltschko's (2012) analysis of strong-eNPs

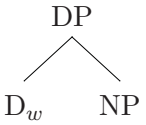

Figure 4–7: Wiltschko's (2012) analysis of weak-eNPs

Concerning the perceived exhaustivity presupposition associated with strong-eNPs with RRCs, Wiltschko (2012:21) notes that

> *...RRC are used to eliminate potential discourse referents. Consequently, they require a set of alternatives of other individuals satisfying the property denoted by N which are potential candidates for discourse referents. ... C is required for this contextually constraint set of alternatives.* Wiltschko (2012:21)

Since "RRC require a contrast set", this explains why RRCs can adjoin only at the level of nP and, consequently, occur only in strong-eNPs. Non-appositive relative clauses used with weak articles receive the label "descriptive" in Wiltschko's (2012) terminology.

[8] Intermediate projections such as NumP are skipped in this representation. Wiltschko (2012:29) assumes that even having taken into consideration the presence of NumP between D and NP, c-selection can "see-through" NumP (and possible other nodes) in search for its goal (nP or NP), in the spirit of the extended projection principle of Grimshaw (1991).

Informally speaking, the semantic proposal I have made in this chapter is somewhat similar to this syntactic analysis in its basic intuition, namely that there is a relation between the use of a strong article and the assumption that in the relevant domain there are other individuals with the nominal property in addition to the referent of the eNP in question. I have argued this to be a condition generated by the merge of R (similar to Wiltschko's 2012 little n) coupled with the uniqueness presupposition of D. In Wiltschko (2012) this relation is built into the architecture of strong-eNPs as a requirement that D_s c-selects a projection (nP) which can host an alternative set in its specifier. The advantage of my account is that it explains why the strong-eNP has to be chosen if the conditions on its use are satisfied by appealing to an independently proposed pragmatic principle, Presupposition Maximization. It also eliminates the need to distinguish between two types of non-appositive relative clauses, restrictive and descriptive, since all the contrasts now fall out of the difference in LF between strong- and weak-eNPs with RRCs.

4.6 Sources of anti-uniqueness: presupposition maximization or restrictor minimization?

In this section I discuss a possible alternative account of the anti-uniqueness requirement which characterizes strong- and demonstrative-eNPs (with and without RRC). Recall that the basic observation is that strong- and demonstrative eNPs do not allow for nominal predicates which are assumed to denote at most a singleton. I have proposed that this requirement is a presupposition introduced by a relational head R, which takes NP as its complement and introduces either a silent individual pronoun or an RRC in its specifier.

It has been observed that modification in general is constrained in that there is a tendency not to use modifiers when an unmodified constituent has the same denotation as the eventual modified constituent would have had. For instance, Schlenker (2004) proposes that there is a constraint (*Minimize restrictors!*) militating against "vacuous" modification in definite descriptions: the sequence *the [A B]* is deviant if A does not affect either the denotation of the description or its pragmatic effects. According to Schlenker (2004), this

explains, in particular, the infelicity in cases such as the following one where *American president* already denotes a singleton. The adjective *small* is infelicitous since the addition of the modifier does not change the extension of the nominal predicate.

(31) #The [small [American president]].

Similarly to the effect that we find with strong-eNP with RRC in Austro-Bavarian, RRC in definite descriptions in English have been noticed to either presuppose or imply that the set denoted by the nominal predicate is larger than a singleton, as the following quote from Bach (1982) illustrates.

> *[A] restrictive relative clause presupposes the existence of entities of which the description given in the relative clause is not true.* Bach (1982:272)

This formulation is commonly understood as implying the existence of entities in the extension of the nominal predicate of which the RRC-property does not hold (Lyons 1977, Tabakowska 1980, Lin 2003 a.o.). Lyons (1977:760) observes that the following English sentence with an RRC, unlike a parallel sentence with an appositive RC, implies that there were soldiers who were not brave.

(32) a. The soldiers who were brave ran forward.

b. The soldiers, who were brave, ran forward.

Tabakowska (1980:191), analyzing the following example in light of Bach's generalization, comments that there is a presupposition that the set of cigars "include[s] at least two members".

(33) I lit the cigar that my colleagues Bill Lake and Mona Meyerling had given me when they had stopped by to visit a few days before. (P. Roth, *Letting Go*)

That there exist at least two cigars in the context can hardly be treated as a presupposition, however. The sentence above can be continued in the following ways: *In fact, this is my first cigar./This is my only cigar.*

The question is whether the anti-uniqueness condition associated with strong- and demonstrative-eNPs is a special case of a more general constraint on vacuous modification, something along the following lines: an index or RRC should not be added into the structure unless it affects the denotation. In other words, we can ask whether the source of infelicity is the same in the following pair of example, on the assumption that the index functions as a modifier in (34-b).

(34) a. #The [small [American president]].
b. #That [1 [American president]].

It seems we can answer that question in an indirect way, namely by comparing predictions made by *Minimize Restrictors!* and the principle of presupposition maximization invoked in the current analysis. On the one hand, *Minimize Restrictors!* as a pragmatic principle should generate an implicature for strings [def A B] that the denotation of B is different from that of [A B] either in a) B does not denote a singleton (and therefore that some members of B do not have the property A) or b) some pragmatic effect, since otherwise A would not have been used. On the other hand, on the current "competing-structures" analysis, the presupposition triggered is that B does not denote a singleton (in the relevant domain).

Importantly, while *Minimize Restrictors!* (on its own) does not seem to make different predictions for strong- and demonstrative-eNPs on the one hand and for weak/*the*-eNPs on the other, the competition account predicts for there to be a contrast between the two classes of eNPs in that only the latter is predicted to consistently give rise to the exhaustivity condition on the Common Ground (i.e. that only one individual in the relevant domain, which involves other individuals with the nominal property (B), has the property denoted

by the whole [A B] predicate). From the comparison of strong- and weak-eNPs with RRC it appears that only strong-eNPs are required in contexts that support the exhaustivity condition. On a purely *Minimize Restrictors!*-account it is not clear why the two types of eNPs would differ in this respect.

I contend then that both *Minimize Restrictors!* and Maximize Presupposition, which involves a choice of a structure triggering a stronger presupposition, are needed to capture the patterns of modification within eNPs. The effect of *Minimize Restrictors!* can be described as a general constraint on non-vacuous modification, where non-vacuity can be achieved in different ways, not necessarily by means of restricting the extension, while Maximize Presupposition has to do specifically with an anti-uniqueness requirement introduced by a structural component. The latter generates a more "tangible" effect which has to do exclusively with size of the nominal set in the relevant domain. Weak/*the*-eNPs are sensitive only to the *Minimize Restrictors!* principle, whereas strong- and demonstrative-eNPs are associated with a more drastic ban on singleton-denoting NPs. Put informally, [the A B] requires that A contributes at least *something*, whereas [that i/RRC R B] requires that i/RRC restricts B's extension.[9]

4.7 Conclusions

In this chapter I showed how the proposal made in chapter 3 to account for RRCs licensing covariation of the denotation of strong-eNPs can be extended to explain why in Austro-Bavarian certain contexts require the use of strong-eNPs with an RRC, rather than weak-eNPs. The proposal is crucially based on an independent observation that strong-eNPs, just as demonstrative-eNPs, cannot contain singleton-denoting NPs. The

[9] Importantly, in the case of [the A B] the denotation of the modified predicate can be the same as that of the unmodified one, that is, AB = B. The relevant *something* can be of a purely pragmatic nature, expressing speaker's emotional attitude, such as, for instance, the contribution of *beloved* in *the beloved bishop of this diocese*.

anti-uniqueness presupposition that I proposed to be involved in these cases in chapter 3 was employed in this chapter to explain why strong-eNPs with RRCs has to be used in contexts which involve more than one individual with the nominal property in the relevant domain.

I also considered the possibility of deriving the anti-singleton requirement from the principle of restrictor minimization. However, *Minimize Restrictors!* does not seem to be enough to cut the data-pie right, as it does not predict any difference between strong-eNPs and weak-eNPs with RRCs.

Semantic considerations, coupled with the facts about syntactic contrasts between strong- and weak-eNPs with RRCs, lead me to the conclusion that there can be two different LFs available for introducing an RRC within the same language. The type assumed on head-internal analysis (Bhatt 2002, Hulsey and Sauerland 2006 among others) whereby the nominal predicate and RRC form a syntactic constituent which does not involve any other projections, accommodates weak-eNPs with RRC, whereas the case of strong-eNPs points to an LF where an RRC is introduced by a special head. This special head is R on my proposal, and D in a series of proposals tracing back to the 70s and recently represented in Sternefeld (2008), Larson and Yamakido (2008), and Blümel (2011), among others.

Part II

Locating domain restriction in definites: Swedish

CHAPTER 5
DEN-omission in Swedish

5.1 Introduction

The main subject of Part 1 was the phenomenon of direct referentiality, and, specifically, how it should be modelled in the semantic representation in order to capture all the relevant patterns. I showed that assuming a relational projection which can host either a silent pronoun or an RRC as part of strong- and demonstrative-eNPs cuts the pie in the right way with respect to all the patterns I am aware of. This part of the dissertation switches subject to an unrelated topic, but also crucial for the understanding of the semantics of definites, namely, domain restriction. Specifically, the present chapter focuses on the semantics of the omission of the free-standing article in Swedish (DEN-omission), unparalleled in other Germanic languages. It makes a novel contribution to the on-going debate about the placement of domain restrictors within the extended nominal projection by showing that in the absence of a (free-standing) definite article, the denotation of [AP + NP] cannot be restricted, unless the modifier has a special, that is, context-sensitive, semantics. This supports associating syntactic domain restriction with the D-level, instead of the NP-level. A more general conclusion that emerges from this work is that implicit global restriction of the domain of individuals is unavailable, at least in Swedish.

The conditions on the DEN-omission, namely, why certain modifiers "license" the omission freely, while others only in a very special context, is a long-standing puzzle in the grammar of definite expressions in Swedish, and has not received any formal semantic treatment so far. I propose that the article can be omitted whenever it is presupposed that [AP + NP] (i.e. noun with its modifiers) denotes uniquely. I show that this is almost always the case with superlatives and ordinals, whereas in the case of context-sensitive

positive gradable modifiers, on the assumption that their semantics involves a comparison set, this is the case when there is just one individual in the set which passes the comparison standard. Thus, context-sensitive modifiers, by virtue of their semantics, naturally restrict the domain where the uniqueness must hold (i.e. comparison set). This is not available for context-insensitive modifiers: in order for such [AP + NP] to denote uniquely, the corresponding property has to hold of a single individual in all worlds compatible with the Common Ground, obviously a very strong requirement. The rarity of DEN-omission with non-context-sensitive modifiers then naturally follows from my account.

The discussion in this chapter relies on, and thus supports, the approach which ascribes the context-sensitivity of certain gradable modifiers to the presence in their semantics of a comparison set variable. Technically this is implemented in the form of a silent set pronoun adjoined to the positive morpheme, in parallel to what is done in Heim (1999) for the superlative morpheme.

5.2 The pattern of DEN-omission

Swedish, similarly to the Austro-Bavarian variety of German discussed above, distinguishes between two paradigms of definite articles, namely, free-standing and suffixal. However, the distribution of the two paradigms is very different. In definite expressions without a modifier, by default, only the suffixal article is used, (1). In the presence of a modifier, the free-standing article is used together with the suffixal one, (2). If used with unmodified nouns, the free-standing form bears stress and implies a contrastive reading, as in (3).

(1) cirkel-n
circle-EN
'the circle'

(2) den grå cirkel-n
DEN grey circle-EN
'the grey circle'[1]

(3) den cirkel-n
DEN circle-EN
'*that* circle'

[1] I am using DEN and -EN glosses for the free-standing and the suffixal articles respectively in order not to give them specific semantic labels for the moment and also to abstract away from number and gender features they inflect for.

Although there has been no formal semantic analysis of Swedish articles, some insights has been offered as to their meaning in the morphosyntactic literature. Since this chapter focuses on the omission of the free-standing article, I will limit myself to a very brief summary of what has been said about this article only. Kester (1993) proposed that DEN in Swedish (and Norwegian) is semantically vacuous, which allows it to co-occur with the suffixal article. Similarly, Delsing (1993) treats DEN as an expletive and Santelmann (1993) as an element inserted to provide phonological support for features in D. In contrast, Lohrmann (2008:91) proposes that DEN "introduces a discourse referent that contains a new discourse variable". To preview the results of this chapter, I conclude that the special semantic contribution of DEN amounts to introducing a domain restrictor.

There is also a lesser known pattern of the free-standing article omission. Namely, under certain conditions, the free-standing article is optional before a pre-nominal modifier in definite expressions. I will call this pattern "DEN-omission". One such case is given below.

(Context: Peter has two pigs on his hobby farm. One pig is fatter than the other. He is showing the pigs to his friend Sven and says,)

(4) Jag ska ta **största gris-en** till en tävling.
I will take biggest pig-EN to a contest
'I will take the biggest pig to a contest.'

Now, DEN-omission is productive only with certain modifiers. What obscures the pattern is that it is not immediately obvious that modifiers involved in it form a semantically natural class. On the one hand, DEN-omission happens with modifiers that by virtue of their semantics "guarantee" that at most one individual is picked out by the denotation of the nominal expression (an adjectival and a nominal phase, henceforth [AP + NP]), such as superlatives, ordinals and modifiers such as *enda* 'only'. On the other hand, DEN-omission is possible with certain positive modifiers, whose semantics seemingly does not produce such an effect.

It also needs to be mentioned that DEN-omission is restricted to singular nominal expressions, which is why I discussed only those. I briefly address a possible reason for this restriction in section 5.7.

In what follows I contrast the hypothesis that there is something special about DEN-licensing modifiers, that is, that they do form a natural class with respect to some relevant semantic property such as "guaranteeing" uniqueness with the hypothesis that DEN-omission is in principle available with any modifier, provided [AP + NP] satisfies the uniqueness presupposition. I call the former "necessary uniqueness" and the latter "possible uniqueness" hypothesis. I demonstrate that the "possible uniqueness" hypothesis, which crucially assumes that domain restriction in definites comes from an overt definite article, has a much better data coverage.

In the next section I illustrate the pattern with more examples, give some literature background, and outline the main insight. In sections 5.4–5.6 I explore the "necessary uniqueness" hypothesis, namely, that there is a semantically natural class of DEN-omission licensers. In section 5.4 I first formulate conditions on the omission based on the case of superlatives, making it explicit how the semantics of superlatives can ensure necessary uniqueness, and why some other modifiers licensing DEN-omission fall into the same class. Then in section 5.5 I move on to considering how the conditions can be satisfied by [AP + NP] involving context-sensitive positive gradable modifiers, in contrast to non-context-sensitive ones. In particular, I propose that the extension of [AP + NP] with a context-sensitive positive gradable adjective is fixed across possible worlds given certain assumptions about the semantics of the positive morpheme (POS). In section 5.6 I consider the consequences of making these assumptions about the semantics of the positive morpheme, which amounts to evaluating the successfulness of the "necessary uniqueness" hypothesis. In 5.6.2 I show that a simpler, but also more radical "possible uniqueness" hypothesis that DEN-omission cases are definites without a D-provided domain restrictor elegantly explains the pattern.

This hypothesis is more radical in that it is built on the assumptions that there is no implicit domain restriction available and that the only types of overt domain restrictors in definites are located either at the D-level, or at the AP-level as part of the semantics of context-sensitive adjectives. Section 5.7 concludes the paper.

5.3 Background

As observed in Dahl (2004:133), the free-standing article can be omitted with a class of modifiers descriptively called "selectors". Those involve superlatives, (5), ordinals, (6), *enda* 'only', (7), as well as modifiers such as *nästa* 'next', *förre* 'previous', *sista* 'last', *höger* 'right', as in 'right hand', *vänstra* 'left', *norra* 'Northern', *översta* 'topmost', *rätta* 'right', as in 'right decision' and *fela* 'wrong'. In the literature the possibility of DEN-omission has been also mentioned in Delsing (1993), Santelmann (1993), Kester (1996), Vangsnes (1999), Julien (2005), Lohrmann (2008), and LaCara (2011), among others, although none of the cited works is concerned with DEN-omission *per se*.[2]

(5) Jag ska ta **största gris-en** till en tävling.
I will take biggest pig-EN to a contest
'I will take the biggest pig to a contest.'

(6) Vi skulle bo på **femte våning-en**.
we should live on fifth floor-EN
'We should live on the fifth floor.'[3]

(7) ...Med **enda skillnad-en** att Kulla Gulla har rågblonda lockar...
with only difference-EN that Kulla Gulla has rye.blond curls
'...With the only difference that Kulla Gulla has rye blond curls...'[4]

[2] Throughout the paper I use definite, or "weak" in traditional terms, forms of adjectival modifiers as citation forms. In contrast to the "strong" forms, in the weak paradigm the gender and number distinctions are neutralized.

[3] SUC 4242933

[4] SUC 10242145

What these descriptions have in common, intuitively, is that due to their lexical properties they always hold of at most one individual.[5] Such a generalization would capture the well-formedness of (5)–(7), as detailed below. This would also explain why (8) is ill-formed, as there is nothing about the semantics of the positive intersective modifier *randiga* 'striped' that would guarantee the uniqueness.

(Context: Anika has two fine carpets in her house, one striped and one dotted. She wants to give one as a wedding gift to her friend Wilma. She asks her husband,)

(8) Tror du att Wilma skulle vilja ha *(den) **randiga tapet-en**?
believe you that Wilma should want have *(DEN) striped carpet-EN
'Do you think that Wilma would like to have the striped carpet?'

At this point it seems more or less straightforward what makes omission-licensing modifiers a natural class: these modifiers are "guaranteeing" the uniqueness of the referent by virtue of their lexical meaning. However, this would not capture the well-formedness of (9) with a positive form *stora* 'big' whose semantics, it would seem, gives no such "guarantee" of uniqueness. After all, there could well be more than one big pig.

(Context: Peter has two pigs on his hobby farm. One pig is fatter than the other. He is showing the pigs to his friend Sven and says,)

(9) Jag ska ta **stora gris-en** till en tävling.
I will take big pig-EN to a contest
'I will take the big pig to a contest.'

(10) Då malde Tora en handfull bönor i kvarn-en och tog friskt vatten i
Then grounded Tora a handful beans in mill-EN and took fresh water in
lilla panna-n...
small pan-EN

[5] This statement might seem less obvious for modifiers such as *rätta* 'right', but notice that in English *right* requires a definite article, that is, it satisfies the uniqueness presupposition: *He made the/*a right decision.*

'Then Tora ground a handful of beans in the mill and put some fresh water in the small pan...'[6]

That is, on the face of it, these positive adjectives do not form a natural semantic class together with "selectors". It is therefore not very surprising that Dahl (2004) does not describe the pattern in terms of a natural class of modifiers, simply listing "selectors" and mentioning DEN-omission with some other modifiers such as *stora* 'big'.[7]

Finally, consider DEN-omission in the following example where the modifier *amerikanska* 'American' is obviously not uniqueness guaranteeing in any sense, but perhaps it can be argued that the eNP *amerikanska Senaten* 'American Senate' is a proper name. DEN-omission with proper names in Swedish is a very common pattern.

(11) Misslyckande-t om att nå en kompromiss i kongress-en om budget-en
failure-EN of to reach a compromise in Congress-EN of budget-EN
skakar USA och debatteras i **amerikanska Senat-en**.
shakes USA and gets.discussed in American Senate-EN
'The failure to reach a compromise in Congress about the budget shakes up the USA and is being discussed in the American Senate.'[8]

In what follows I first advance a strong "necessary uniqueness" hypothesis, which assumes that the condition on DEN-omission is stronger than the condition of the use of DEN

[6] SUC 779772

[7] An example given in Dahl (2004:157), *stora hus-et* 'big house', Swedish), can be apparently used by, for instance, an owner of two houses, to routinely refer to one of them. Dahl (2004:157) groups these uses as "name-like", using the "-like" part to reflect the fact that in such cases the article can be omitted even "before these denominations have become so "entrenched" that it is natural to use capital letters", where I take "entrenched" to mean "become rigid designators". DEN-omission is seemingly freely allowed in the case of proper names involving all kinds of modifiers, e.g. *Vita huset* 'the White House'.

[8] http://www.tv4play.se/program/nyheterna?video_id=2456305

and all DEN-omission licensing modifiers are like superlatives in that they can "guarantee" uniqueness for all worlds where [AP + NP] has a denotation. This means that the uniqueness of the denotation of such [AP + NP] is entailed by all permissible Common Grounds (for the given context parameter). I show that with certain assumptions about the semantics of positive forms, even they can satisfy this condition. The required assumptions, however, turn out to be costly. Therefore I propose a weaker condition, which I call "possible uniqueness" hypothesis. The latter requires that [AP + NP] denote uniquely with respect to a given Common Ground. This shifts the burden of ensuring uniqueness from the semantics of modifiers to the choice of a Common Ground. The main insight is that context-sensitive positive gradable modifiers license DEN-omission much more readily than context-insensitive modifier because their semantics involves a domain restrictor under the form of a Comparison Set as proposed in Von Stechow (1984), Kennedy and McNally (2005), Kennedy (2007), Syrett et al. (2010) among others, which serves as a domain restrictor when it comes to establishing uniqueness. It follows from the facts about the world that a Common Ground entailing uniqueness is more readily found for a [AP + NP] with a domain restrictor than for one without.

I begin the next section, which lays out the "necessary uniqueness" hypothesis, by elaborating on the exact content of the notion of "guaranteeing", so far used in a rather informal sense, first engaging only the most obvious "guaranteers", superlatives.

5.4 Necessary Uniqueness: superlatives, ordinals, *enda* 'only'

DEN-omission is never obligatory in the context of an [AP + NP] predicate.[9] In other words, the free-standing article can be used in all cases where [AP + NP] can.[10] Therefore, one condition on DEN-omission is that [AP + NP] meet the conditions for composition with DEN. But what are exactly the conditions on the use of the free-standing article?

On the Fregean presuppositional treatment for DEN, $[\![DEN]\!]$ is defined in case the property denoted by its complement — [AP + NP] — holds only of one individual with respect to a given pair of interpretation parameters. Assuming Stalnaker's (1973) translation of definedness conditions into felicity conditions with respect to a given Common Ground, the condition on the use of DEN can be stated as a requirement that the property denoted by the nominal expression hold of a unique individual with respect to a context set (where κ is Stalnaker's context set, a set of worlds where all the Common Ground propositions are true).

(12) [DEN [AP + NP]] is acceptable with respect to a given κ if and only if
$|[\![AP\ +\ NP]\!]^{c,w'}| = 1$ in all w′∈κ

We have thus identified one part of the condition on DEN-omission. However, if (12) is the right condition for the use of DEN, something is obviously missing, since DEN-omission

[9] Perhaps the only exception is *hele* 'whole' which also has a very different syntax from other modifiers: it appears in front of the free-standing article if there is another modifier preceding the noun: *hele* ***den*** *animerte seri-****en*** 'the whole animated series'. Thanks to Björn Lundquist for pointing this out to me.

[10] In this chapter I gloss over the semantic contribution of the suffixal article. More accurately, the predicate looks like [AP + NP-EN].

is possible not in all cases where it is okay to use DEN.[11] In what follows I explore the hypothesis that for DEN-omission the condition in (12) has to be strengthened to require uniqueness in all possible worlds, not just with respect to a given κ.

5.4.1 Superlatives: at most a singleton

I start by discussing DEN-omission with superlatives because those are related to uniqueness in the most intuitively clear way. Once I have made an explicit hypothesis about why superlatives license DEN-omission, I then extend that hypothesis onto other licensers.

Given just the case of superlatives, we could preliminarily state the condition on DEN-omission as requiring that the uniqueness of the referent be "guaranteed" by the semantics of the modifier, where the "guaranteeing" is understood in the following way: [AP + NP] such as the one in (13) denotes at most a singleton always, that is, with respect to all possible interpretation parameters, such as contexts and worlds.

(13) Jag ska ta **största gris-en** till en tävling.
I will take biggest pig-EN to a contest
'I will take the biggest pig to a contest.'

Although intuitively reasonable, how can we be sure that [AP + NP] with superlatives indeed denotes at most a singleton? This is difficult to ascertain while they are part of definite descriptions, simply because any [AP + NP], when complement to a definite article, has to have a singleton extension (within a given domain) by virtue of the presupposition of the definite article itself. However, we can isolate the properties of superlatives from the uniqueness requirement of a definite article by observing the patterning of superlatives

[11] Cases of DEN-omission should be distinguished from cases of adjective-noun compounding, not rare in Mainland North Germanic languages, as well as from proper names, which normally do not require a free-standing article. Compounds are characterized by non-compositional meaning (e.g. *öppna spis-en* 'the fireplace' lit. open stove-EN).

in predicative positions. That a superlative AP always picks out at most one individual becomes evident from the examples such as (14), which is infelicitous presumably because the property denoted by *fastest* is predicated of two distinct individuals denoted by *Bill* and *Mary*. An important implicit assumption that goes into this kind of test is that both instances of superlatives quantify over the same domain. In the example at hand the assumption is facilitated by the overt indication of the domain (*in my school*).

(14) #Bill is fastest in my school and Mary is too.

What is the denotation of *fastest* in (14)? Let consider a situation where there is a single individual whose speed of running exceeds that of all other students in the school. This can be either Bill, or Mary, or else a third person. In this case *fastest* denotes a singleton, and we have an explanation for why the property denoted by *fastest* cannot be predicated of the individuals Bill and Mary at the same time.

Another possibility is that some people in the class (say Bill, Mary, and Sam) can run with exactly the same speed. However, superlative predicates are not distributive (Stateva 2002, B. Schwarz 2008 among others). For instance, it is false to say (15) if we know that Huascaran is only one of the tallest mountains in the world.

(15) Huascaran is tallest in the world.

So in the second scenario, when several individuals (for instance, Bill, Mary, and Sam) run at the top speed, while it is possible to say that *Bill, Mary, and Sam are fastest*, it is impossible to say that *Bill is fastest* and *Mary is fastest*. Informally, this is now because *Bill is fastest* is true just in case Bill is faster than any other individual in the relevant domain, while the truth of *Bill, Mary, and Sam are fastest* requires that all three of them had the speed of running exceeding that of any other individual in the relevant domain outside of the group. *Bill is fastest* is therefore judged to be false in a world where *Bill, Mary, and Sam are fastest* is true. We can therefore conclude that in worlds where a superlative "in

isolation" has a denotation, it denotes a singleton, which can contain either an individual or a group of individuals.

Now that we know how superlatives behave "in isolation", that is, in a predicative position, we can easily identify the source of infelicity in the uses of nominal expressions with superlatives with indefinite articles, as in (16) taken from (Lyons 1999:9).

(16) Janet is the/(#a) cleverest child.

Given that [AP + NP] with a superlative denotes at most a singleton, the case in (16) emerges as just a special case of the general anti-uniqueness requirement of indefinite articles. As was discussed at length in chapter 3, the latter effect is a result of the pressure to use the article with the strongest presupposition (i.e. the definite one) whenever the presupposition is met.[12] Therefore, we can conclude that it is because of the superlative that there is a pressure to use the definite article. That is, the semantics of the superlative is such that it is part of the Common Ground that there is only one individual satisfying the description (this conclusion will be revised shortly). This is expected if the semantics of the superlatives is such that in any Common Ground they denote at most a singleton.

Below I talk about formal semantics of superlatives and, based on that, formalize the condition of DEN-omission.

5.4.2 DEN-omission with superlatives

In this section I will lay Heim's (1999) approach to superlative semantics which will be at the core of my first round of analysis of DEN-omission. Having established some basic properties of [AP + NP] predicates with superlatives in the previous section, let us now zoom in on DEN-omission with a superlative in the following example, repeated from (13).

[12] Notice that whenever the uniqueness presupposition does not hold in a given Common Ground, it is okay to use *the* with a superlative: *Assume there is a largest prime number* from http://www.arachnoid.com/prime_numbers/.

(17) Jag ska ta **största gris-en** till en tävling.
I will take biggest pig-EN to a contest
'I will take the biggest pig to a contest.'

I assume that the LF for the nominal expression *största grisen* 'biggest pig' in (17) is as in (18). In this LF the superlative morpheme undergoes a short movement from the position where it is adjoined to *big* to take scope over both the noun and the adjective, leaving a trace of type d, as in Heim (1999) (reasons to assume this movement to be discussed shortly). C is a phonologically null Comparison Set variable.[13]

(18) C-*est* λ_i [d_i-big pig]

Assuming Heim's (1991) semantics of gradable adjectives, a gradable adjective such as *big* denotes a relation between degrees and individuals.

(19) $[\![big]\!]^{c,w} = \lambda$d. λx . the size of x equals or exceeds d

Assuming that the raising of -*est* leaves a trace of type d which saturates the first argument of the function denoted by *big*, d_i-*big* denotes a property of individuals to be of size which equals or exceeds g(d_i), where g is a variable assignment. This property combines with the property denoted by *pig* by the Predicate Modification rule (Heim and Kratzer 1998: 65), resulting in the predicate d_i-*big pig* true of individuals that are pigs whose size equals or exceeds g(d_i). Lambda abstraction over the trace creates a corresponding property of degrees.

(20) $[\![\lambda_i\ d_i\ big\ pig]\!]^{c,w} = \lambda$d . λx . the size of x equals or exceeds d and x is a pig

This is a downward monotonic relation between degrees and individuals: an individual that is related to a degree d is also related to all degrees d′ such that d′<d. This semantics

[13] I use English in the formulae here and henceforth for clarity.

implies that if only one individual is related to a given d, it is necessarily the biggest one, since if no other individual is related to that degree, the size of no other individual equals or exceeds d. This is exactly what the superlative morpheme is about, according to Heim (1999): it picks out from a Comparison Set an individual uniquely related to a degree d. Specifically, *-est* denotes a function with three arguments: a Comparison Set argument C, a relation R between degrees and individuals on a certain scale (such as the denotation of λ_1 *[d_1-big pig]* in our case), and an individual x.

(21) $[\![est]\!]^{c,w} = \lambda C\ .\ \lambda R\ .\ \lambda x : x \in C\ .\ \exists d[R(d)(x)\ \&\ \forall y{\in}C[y \neq x \rightarrow \neg R(d)(y)]]$
(to be finalized)

As discussed in Heim (1999), this function has to be defined only for individuals that are members of the Comparison Set. Otherwise we would make an incorrect prediction that *biggest pig* can be judged true with respect to a Comparison Set that contains no other pigs but only cats. This is reflected in the entry above as a restriction on the domain of the individual argument. In addition, intuitively, a Comparison Set is not chosen randomly. Rather, its members normally have the properties denoted by the adjective and the noun, which is what makes them comparable. The short LF-movement in (18) is proposed in Heim (1999) precisely in relation to this issue: it is now possible, by placing a definedness condition that all members of C have the property R ($\lambda d\ .\ \lambda\ x.\ [\![big]\!](d)(x)\ \&\ [\![pig]\!](x)$), to make sure that all members of C are comparable. A revised entry for *est* is given below.

(22) $[\![est]\!]^{c,w} = \lambda C\ .\ \lambda R : \forall \mathbf{y}{\in}\mathbf{C}\ \exists \mathbf{d}[\mathbf{R(d)(y)}]\ .\ \lambda x : \mathbf{x}{\in}\mathbf{C}\ .\ \exists d[R(d)(x)\ \&\ \forall y{\in}C[y \neq x \rightarrow \neg R(d)(y)]]$

Applying this to the case of *biggest pig* we have the following property of individuals after the Comparison Set C and the property R have been fed into the function denoted by *est*.

(23) $[\![(18)]\!]^{c,w} = \lambda x : x{\in}C\ .\ \exists d[[\![\lambda_i\ d_i\ big\ pig]\!](d)(x)\ \&\ \forall y{\in}C[y \neq x \rightarrow \neg[\![\lambda_i\ d_i\ big\ pig]\!](d)(y)]]$

The set of individuals satisfying the function in (23) contains *at most one member irrespective of the context or the world*. Hence the following first stab at the condition on DEN-omission can be made (Δ is a placeholder for the omitted article, showing that the whole constituent has the distribution of a DP, not of an NP):

(24) [Δ AP + NP] is acceptable with respect to a pair c, w if and only if $|[\![AP\ +\ NP]\!]^{c,w}| = 1$ and $|[\![AP\ +\ NP]\!]^{c',w'}| \leq 1$ for all c′ and for all w′ such that $[\![AP\ +\ NP]\!]^{c',w'}$ is defined.

This condition is obviously much stronger than what we took to be the requirement for the composition of [AP + NP] with DEN, which required only that the predicate denote a singleton with respect to a given pair of interpretation parameters (see (12)). But this is what we expected: on the "necessary uniqueness" hypothesis the condition on DEN-omission was predicted to be stronger than that on the use of DEN since the possibility of DEN-omission entails the possibility of the use of DEN, but not the other way around.

On this hypothesis we expect to find DEN-omission with other predicates which guarantee uniqueness in the same way. In the next section I show that this expectation is confirmed with superlative ordinals, ordinals, and *enda* 'only'.

5.4.3 DEN-omission with ordinal superlatives and ordinals

So far I have formulated the condition on DEN-omission by looking at the semantics of superlatives alone. This condition corresponds to the requirement that [AP + NP] denote at most a singleton for all contexts and worlds. We then expect to find the omission with ordinal superlatives, since those behave in a semantically parallel fashion to superlatives.

In English, nouns with ordinal superlative modifiers, just as in the case of superlatives proper, always pick out a single individual, as the following two examples show. These examples are parallel to those in (14) and (15) above.

(25) #Bill is second tallest in our family and Mary is too.

(26) Janet is the/*a second youngest child in our family.

Semantics of ordinal superlatives can be derived from the semantics of superlatives proper, as B. Schwarz and Shimoyama (2004) showed. The function they propose for the ordinal superlative complex *second -est* is given below (with notational adaptations).

(27) $[\![second\ est]\!]^{c,w} = \lambda C\ .\ \lambda R\ .\ \lambda x\ .\ \exists y[[\![est]\!]^{c,w}(C)(R)(y)\ \&\ [\![est]\!]^{c,w}(C–\{y\})(R)(x)]$

Informally, an individual fitting the description *second R-est* has to become the R-est individual in the set C once we remove the current R-est member. By definition of the superlative function, there is never more than one individual that is R-est in a set. This means that the semantics of an ordinal superlative ensures that [AP + NP] which contains it necessarily denotes at most a singleton in worlds where $[\![AP\ +\ NP]\!]^{c,w}$ is defined.

The expectation about DEN-omission with ordinal superlatives is fulfilled, as the following example shows.

(28) **Andra längsta platsnamn-et** i värld-en (efter en Tajländsk stad) består
second longest place.name-EN in world-EN (after a Thailand city) consists
av 85 bokstäver.
of 85 letters
'The second longest place name in the world (after a Thailand city) involves 85 letters.'[14]

Moreover, DEN-omission is allowed with simple ordinals. The following example illustrates the pattern.

(29) Vi skulle bo på **femte våning-en**.
we should live on fifth floor-EN
'We should live on the fifth floor.'[15]

[14] http://hataitai.wetpaint.com/page/Aktualno%C5%9Bci+%2F+Nyheter

[15] SUC 4242933

Ordinals pattern similarly to superlatives and ordinal superlatives in necessarily picking out no more than one individual, as the examples in (30)–(31) illustrate, parallel to the examples with superlatives in (14)–(15) and ordinal superlatives in (25)–(26).

(30) #Jane came second in this race, and Tina did too.

(31) Tina lives on the/#a third floor in this building.

Herdan and Sharvit (2006) treat ordinals essentially like superlatives that involve a covert gradable adjective *close*. For instance, they propose the following interpretation for the expression *first man*, where C is a variable ranging over sets of sets and r is a function from sets to reference points. The c variable is valued by the context.

(32) For any x, whenever $[\![est\ C\ close\ to\ r\ man]\!]^{c,w}$(x) is defined,
$[\![est\ C\ close\ to\ r\ man]\!]^{c,w}$(x) = True iff there is X∈C such that x is closer to r(X) than anyone else in X.

(Herdan and Sharvit 2006:16)

Adjectives such as *next* and *previous* have been described as "general ordinals" in Quirk et al. (1985).[16] Their Swedish counterparts *nästa* 'next' and *förra* 'previous' allow for DEN-omission. The following example illustrates the pattern for *förra* 'previous'.

(33) I slut-et av **förra** **veckan** var 217 464 personer inskrivna som arbetslösa
in end-EN of previous week-$_w$ was 217 464 persons signed.up as jobless

[16] Quirk et al. (1985) writes that '... [w]e may reserve the term LOGICAL for cases where the uniqueness of the referent is to be explained not so much by knowledge of the world, as by appeal to the logical interpretation of certain words. These words are postdeterminers and adjectives whose meaning is inalienably associated with uniqueness: ordinals such as *first*; 'general ordinals' such as *next* and *last* ... ; also *same*, *only*, *sole*; and superlative adjectives like *best* and *largest*.'

'By the end of the past week there were 217 464 persons signed up as jobless.'[17]

It seems obvious that whatever semantics we adopt for ordinals, it will be readily extendable to the "general ordinals" as well. For instance, *next* could arguably be interpreted as property which holds of an individual in case it comes first after some reference individual. In the next section I discuss yet another modifier, namely *enda* 'only', the semantics of which makes no reference to gradable predicates, but which is able to form expressions that denote at most a singleton. Expectedly, this one also allows for DEN-omission, thus confirming the current hypothesis.

5.4.4 DEN-omission with *enda* 'only'

Below I show that the adjectival modifier *enda* 'only' guarantees uniqueness in the aforementioned sense of forming together with a noun an expression that denotes at most a singleton by virtue of its semantics. This modifier is then predicted, correctly, to license DEN-omission.

Just as with the predicates discussed above, in (34), *only woman* cannot be predicated of two different individuals. Hawkins (1991:405) gives an example given in (35) to show that in its adjectival function, *only* in English must occur with the definite article.

(34) #Tina is the only woman in my group, and so is Jane.

(35) *an/the only communist in the government was Molotov

This is a pattern already familiar from the discussion of superlatives, ordinal superlatives, and ordinals. Once again, the judgements in (34) and (35) indicate that [AP + NP] with *only* satisfies the uniqueness presupposition of the definite article by virtue of the semantics

[17] http://www.dn.se/ekonomi/fler-arbetslosa-forra-veckan-1

of *only*. Since this presupposition is satisfied, Maximize Presupposition forces the choice of a definite article.

Herdan and Sharvit (2006: 17) propose the following denotation for *only*, where the variable C ranges over sets of individuals. The function denoted by *only* picks an individual from the context set C such that it is the only individual to have the property P. This function is undefined for individuals that do not belong to the context set in question or that do not posses the property P.

(36) $[\![only]\!]^{c,w} = \lambda C\ .\ \lambda P\ .\ \lambda x :\ P(x)\ \&\ x \in C\ .\ \forall y \in C\ [y \neq x \rightarrow \neg P(y)]$

By the definition of the function denoted by *only*, if the function is defined, [AP + NP] with *only* will always denote a singleton. As expected, in Swedish *enda* 'only' patterns with superlatives, ordinal superlatives and ordinals in allowing for DEN-omission.

(37) ...Med **enda skillnad-en** att Kulla Gulla har rågblonda lockar...
with only difference-EN that Kulla Gulla has rye.blond curls
'...With the only difference that Kulla Gulla has rye blond curls...'[18]

To give an interim summary, we have seen that a common denominator for a subset of DEN-omission licensers — superlatives, ordinal superlatives, ordinals and *enda* 'only' — can be identified as the property of the adjective to make [AP + NP] denote at most a singleton in all contexts and worlds with respect to which $[\![AP\ +\ NP]\!]^{c,w}$ is defined.

In the next section I introduce some nuances into this so far quite straightforward generalization. Namely, I will discuss cases where we find these modifiers with indefinite articles. This will force me to relativize the condition to the context parameter.

[18] SUC 10242145

5.4.5 Superlatives/ordinals/*only* with indefinites

In this section I discuss some data suggesting that it might not be the case that [AP + NP] with superlatives and alike denote at most a singleton irrespective of the context. First, consider the following sentence.

(38) Det fungerar med alla de äldre barnen men det yngsta får "aldrig" växa
it works with all EN older children but DEN youngest gets never grow
upp (jag är själv **ett yngsta barn**).
up I am self a youngest child
'It works with all the older children, but the youngest child "never" grows up (I am a youngest child myself).'[19]

The same holds in English.

(Context: a talk on child development.)

(39) Tina is **a youngest daughter**, and so is Jane.[20]

Trying to grasp the meaning intuitively, the superlative *youngest* with an indefinite article can conceivably be uttered in a talk about the category of people who are youngest in their respective families.

These examples are counter-evidence to the conclusion that [AP + NP] with superlatives are guaranteed to denote uniquely. That the article *a* is chosen in (39) means that the uniqueness presupposition carried by the "competing" *the* is not taken to be satisfied. If it were, *the* would have had to be chosen.

As in the case of superlatives, we do find some instances of ordinals appearing with an indefinite article, as in the example below.

[19] http://www.vemuppfostrarvem.se/mitt-barn-var-sa-gulligt-nar-det-var-litet-men-nu-forstar-jag-mig-inte-pa-det-langre/

[20] Thanks to Jennifer Ingle for suggesting this example to me.

(40) Betala extra för **en tredje gäst**.
pay extra for a third guest
'Pay extra for a third guest'.[21]

(41) There have been already three people in the restaurant when **a fourth person** came.

(42) They each had **a second glass of wine** by then.

Herdan and Sharvit (2006) propose an approach to superlatives and ordinals that is able to deal with cases such as this one. Specifically, they propose that the Comparison Set variable C in the denotation of superlatives and ordinals ranges over sets of sets, instead of simply sets of individuals. This is implemented in (43) taken from Herdan and Sharvit (2006) with some notational and minor substantive adaptations.[22] On this assumption, the superlative morpheme denotes a function from sets of sets of individuals to a function from properties of degrees to sets of individuals. Once a set of sets C and a property of degrees R are supplied, this function, if defined, return a set of individuals every one of which belongs to one of the sets in C and which is the only one to be related by R to a certain degree d in that set.

(43) $[\![est]\!]^{c,w} = \lambda C_{<<e,t>,t>} .\ \lambda R : \forall \mathbf{Y} \in \mathbf{S}\ [\forall \mathbf{y} \in \mathbf{Y} \exists \mathbf{d}[\mathbf{R(d)(y)}]] .\ \lambda x :\ \exists Y \in C[\mathbf{x} \in \mathbf{Y}] .$
$\exists d \exists Y[x \in Y\ \&\ R(d)(x)\ \&\ \forall y \in Y[y \neq x \rightarrow \neg R(d)(y)]]$

[21] http://www.tripadvisor.se/ShowUserReviews-g57592-d655274-r165174852-Budget_Inn-Charlottesville_Virginia.html

[22] Specifically, Herdan and Sharvit (2006) formulate their semantics of the superlative morpheme without assuming a short movement of *est*. Instead, they introduce another argument of the est-function which is eventually filled by the nominal property.

If the S argument is a set containing more than one set of individuals, then an expression with a superlative denotes a set of individuals that are R-est in their respective sets. Consequently, in a context that provides such a Comparison Set, *the* is not expected to "win" because there is more that one individual fitting the description *R-est*.

On this view, whether a noun modified by a superlative/ordinal denotes at most a singleton depends on the context which provides a Comparison Set. In case the Comparison Set contains a single set of individuals, [AP + NP] with superlatives and alike will denote at most a singleton for all evaluation points for which $[\![AP + NP]\!]^{c,w}$ is defined. In case the contextually provided Comparison Set is larger than a singleton, the respective denotations will be larger than a singleton as well.

Finally, both Swedish *enda* 'only' and English *only* have uses on which they are compatible with an indefinite article, in the Swedish example in (44) and in the English example in (45) respectively.[23]

(44) **En enda kvinna** på grupp-en var från Frankrike.
a only woman on group-EN was from France
'A single woman in the group was from France.'

(45) Surely parenting is parenting whether you are raising an only child or half a dozen children.[24]

Again, it seems to be possible to extend Herdan and Sharvit's (2006) account onto this case, assuming that a contextually given Comparison Set that the *only*-function takes as

[23] Arguably, the use of *only* with an indefinite article is highly idiomatized in English and available only for a handful of nouns such as *child* and *son*. Consider the following example, suggested to me by Brendan Gillon, where *only* modifies *only child*: (Context: At the party there was just one child who had no siblings) *The only only child who came to the party was Tina.* As such, it might not be very relevant for the discussion.

[24] http://parenting4dummies.com/only-child-parenting.html

an argument can contain several sets and as a result [AP + NP] with *only*, if it has a denotation, denotes a set of individuals each of which was picked out of the respective set.

This discussion has important consequences for how the DEN-omission condition should be formulated. We have just established that whether [AP + NP] with superlatives, ordinals and *enda* 'only' denote a singleton depends on what kind of a Comparison Set the context provides. This means that the condition (24) has to be relativized to the context. That is, [AP + NP] can appear without DEN if and only if it denotes at most a singleton in a given context.

(46) [Δ AP + NP] is acceptable with respect to a pair c, w if and only if $|[\![NP \ + \ AP]\!]^{c,w}| = 1$ and $|[\![AP \ + \ NP]\!]^{c,w'}| \leq 1$ for all w′ such that $[\![AP \ + \ NP]\!]^{c,w'}$ is defined.

Pinning down context-sensitivity as the property relevant for the DEN-omission pattern builds a bridge to the second major subset of DEN-omission licensers, some positive gradable adjectives. Omission-licensing *stora* 'big' is a classic example of a context-sensitive modifier. The next section is dedicated to establishing what it takes for [AP + NP] with a context-sensitive gradable modifier to satisfy (46), that is, to guarantee uniqueness with respect to a given context.

5.5 DEN-omission with context-sensitive positive gradable adjectives

We come now to the question about what makes it possible for some positive adjectives such as *stora* 'big' to license DEN-omission, and why we have the contrast between (47) and (48).

(Context: Peter has two pigs on his hobby farm. One pig is fatter than the other. He is showing the pigs to his friend Sven and says,)

(47) Jag ska ta **stora gris-en** till en tävling.
I will take big pig-EN to a contest
'I will take the big pig to a contest.'

(Context: Anika has two fine carpets in her house, one striped and one dotted. She wants to give one as a wedding gift to her friend Wilma. She asks her husband,)

(48) Tror du att Wilma skulle vilja ha *(den) **randiga tapet-en**?
believe you that Wilma should want have *(DEN) striped carpet-EN
'Do you think that Wilma would like to have the striped carpet?'

In my analysis I capitalize on the observation that positive forms licensing DEN-omission happen to be context-sensitive, in contrast to the forms that do not. We just saw in the section on superlatives and other "selectors" that if the context is of the right kind, namely, if it provides a Comparison Set of individuals (as opposed to a set consisting of other sets), [AP + NP] denotes at most a singleton in all worlds.

In this section I try to pursue the hypothesis that context-sensitive positive gradable adjectives are just like superlatives in that given the right context — one which provides a Comparison Set of the "right" kind — they make [AP + NP] denote at most a singleton in all worlds where it is defined. I will show that the Comparison Set is of the right kind whenever only one member stands out in terms of the degree it is associated to on the relevant scale. I will also show that this hypothesis requires certain assumptions about the semantics of the positive degree morpheme, to the effect that the context-provided Comparison Set and the measures of the Comparison Set members on the relevant scale stay fixed across the worlds where [AP + NP] is defined.

For the moment I am putting aside cases of DEN-omission corresponding to "larger situation uniqueness" presented in the beginning of the chapter. The contrast between (47) and (48) can be discussed independently of those uses since within the situations under consideration (a farm and a house), both *stora grisen* 'big pig' and *randiga tapeten* 'striped carpet' denote uniquely, and yet the omission is possibly only with the former. Once I have extended the "necessary uniqueness" hypothesis onto context-sensitive adjectives, I evaluate it with respect to these cases.

5.5.1 Context-sensitivity of some positive gradable adjectives

It has been commonly assumed that the denotation of predicates involving positive modifiers such as *big* or *tall* involves a contextually determined parameter (Kamp 1975, Cresswell 1976, Klein 1980, Von Stechow 1984, Barker 2002, Kennedy and McNally 2005, Kennedy 2007, Syrett et al. 2010 to name just a few). The general intuition behind this assumption is that in order to tell whether something is big we need to know what it is being compared to, whereas in the case of a standardly intersective adjective like *striped* a judgement can be made of an object in isolation. Compare the following situations.[25]

Figure 5–1: big pig?

Figure 5–2: striped pig

Figure 5–3: big pig

In Von Stechow 1984, Kennedy and McNally 2005, Kennedy 2007, Syrett et al. 2010 this parameter takes the form of a contextually determined Standard of Comparison.

[25] The pig without stripes is a picture of a toy by Schleich. The striped pig comes from the logo of the Striped Pig Stringband http://www.last.fm/music/Striped+Pig+Stringband/+images/495337.

Although one might argue that *striped* can be treated as supporting comparison since it is possible to imagine that objects can be compared in terms of how striped they are, what is important is that the meaning of *big* crucially depends on the context, whereas that of *striped* does not.[26] That is, not all gradable modifiers manifest context-sensitivity. Kennedy and McNally (2005), developing Kennedy and McNally (1999), offer a typology of gradable modifiers according to whether a degree scale they associate with is open or closed (lower- or upper-end bound). Kennedy (1999) relates context-(in)sensitivity to a particular type of a scale. Namely, while the semantics of gradable modifiers associated with closed scales, such as *open*, employs the relevant end of the scale as the Standard of Comparison (there is an upper limit to how open something can be, that is, completely open), modifiers associated with open scales need their Standards to be set contextually. That *striped* is associated with a trivial lower-end-of-the-scale Standard, rather than a context-sensitive Standard is evidenced by the following entailment test from Kennedy (1999:168): *x is not striped* entails that x has no stripes at all (affirmation of the contrary leads to a contradiction: *#x is not striped, but there are a few stripes on x*). Compare this to the results of the test for *big*: *x is not big* can be continued with *but x's size is just normal*. In addition, notice that *big* can be easily embedded under judge-dependent predicates, whereas *striped* cannot: *John finds his cat big* vs. *#John finds his cat striped* (for a recent discussion of the connection between context-sensitivity and judge-dependence see Bouchard (2012)).

The Standard of Comparison is often taken to be defined relative to some specific group or Comparison Set (Klein 1980, Kennedy 1999, Syrett et al. 2010, among others).[27] I

[26] Interestingly, *striped* contrasts with *stripy* in that only the latter sounds good with the intensifier *very*. Thanks to Jessica Coon for this observation.

[27] It has been a matter of discussion whether a Comparison Set needs to be a subset of the set denoted by the noun (Kamp and Partee 1995, Heim and Kratzer 1998, Kennedy 2007).

adopt a very specific view of where the Standard of Comparison comes from, namely, that it is wholly determined by the group of individuals amongst which the comparison is being made, as in Fernández (2009).[28]

As in Kennedy (1999), (who builds on Von Stechow (1984)) I assume that the LF of positive gradable adjectives involves a silent positive morpheme POS which introduces a Standard of Comparison. I assume that the syntax-semantic properties of POS are quite analogous to those of *-est*, as proposed in B. Schwarz (2010): POS moves to take scope over [AP + NP]. The LF for the nominal expression *stora grisen* 'big pig' is given in (49).

(49) POS λ_i [d_i-big pig]

Once again, a property of degrees which holds of individuals that are pigs whose size equals or exceeds the degree d is created as a result of this movement, as in (50) repeated from (20).

(50) $[\![\lambda_i\ d_i\ big\ pig]\!]^{c,w} = \lambda$d . λx . the size of x equals or exceeds d and x is a pig

I propose that the function denoted by POS takes a Comparison Set C as its first argument, a property of degrees R as its second argument, and an individual x as the third one. This function gives true in case an individual is related to the degree d on the relevant scale (size, length, etc.) associated with its second argument R which exceeds the Standard of Comparison derived from the Comparison Set C.

(51) $[\![POS]\!]^{c,w} = \lambda$C . λR . λ x . $\exists$d[R(d)(x) & d > Std(C)(R)] (to be finalized)

[28] According to Fernández (2009), the Standard of Comparison corresponds to the most salient gap between two neighbouring degrees in a set of degrees corresponding to a given Comparison Set ordered by a gradable adjective. Fernández (2009) sketches a formal mechanism for determining what the most salient gap is, which I do not reproduce here. I also do not discuss whether it is possible to obtain a Standard of Comparison for any Comparison Set or not, limiting myself to a remark that it follows from the way the Standard of Comparison is defined that it cannot be a singleton.

Function STD maps a Comparison Set C to a Standard of Comparison given a scale associated with the relation R (e.g. a size scale associated with $[\![\lambda_i\ d_i\ big\ pig]\!]$).

The function that [*big-POS-C pig*] denotes is true of an individual in case it is a pig whose size exceeds the Standard of Comparison.

(52) $[\![(49)]\!]^{c,w} = \lambda x\ .\ \exists d[[\![\lambda_i\ d_i\ big\ pig]\!]^{c,w}(d)(x)\ \&\ d > \text{STD}(C)([\![\lambda_i\ d_i\ big\ pig]\!]^{c,w})]$

The crucial question is whether the function in (52) can characterize at most a singleton in all worlds given an appropriate context. In a given world, this function corresponds to a characteristic function of a set of pigs whose size equals or exceeds a certain measure, namely, the Standard which depends on the Comparison Set variable C. This means that whether (52) characterizes a singleton depends on the context that provides the Comparison Set.

However, as I show below, given the semantics of POS in (51), the cardinality of the extension of [AP + NP] with context-sensitive modifier does not *wholly* depend on the context, that is, it is not fixed by the context. This is because, unless provisions are made about the identity of the Comparison Set in possible worlds, it is conceivable that certain properties of its members change to the effect that the cardinality of $[\![AP\ +\ NP]\!]^{c,w}$ also changes. In the remainder of this section I review one-by-one conditions that the semantics of POS has to satisfy in order for the extension of the predicate to be dependent only on the context. I first discuss an independently plausible condition on membership in the Comparison Set, then an independently plausible condition on Comparison Set members satisfying the nominal predicate, and finally I get to a more questionable condition that the measures of the Comparison Set members stay fixed across worlds.

5.5.2 Comparison Set membership

As it stands, the semantics in (52) will sometimes produce strange results. Namely, this function is a characteristic function of a set which is not necessarily a subset of the Comparison Set. In other words, it predicts that, given a Comparison Set C, the function

denoted by [*big-POS-C pig*] will be judged true of an individual whose size surpasses the Standard STD(C)($[\![\lambda_1\ d_1\ big\ pig]\!]^{c,w}$), but which is not part of C. One of the consequences is that, in some worlds, the extension of *big pig* will include individuals that are not part of the Comparison Set. As an illustration, consider the following scenario, where the pig outside of the square in 5–5 is not a member of the Comparison Set.[29]

Figure 5–4: A condition on the external argument of POS: W1

Figure 5–5: A condition on the external argument of POS: W2

Given the semantics for POS we have, *big-POS-C pig* in world 1 in 5–4 denotes a function characterizing a singleton, assuming the Standard singles out one pig, whereas in world 2 in 5–5 it denotes a function characterizing a set with two members, since both pigs of 60kg will satisfy the function in (52) given a Comparison Set consisting of a pig of 30kg and a pig of 60kg. The situation in 5–5, however, seems counterintuitive in that it is strange to apply an expression to something that was not taken into account when establishing the standard for applying the expression.

It has been also observed that in those cases where a Comparison Set is introduced by an overt *for*-phrase, it is infelicitous to predicate a context-sensitive modifier of an individual

[29] For the purposes of illustration I use weight as a measure of size.

which neither have the nominal property shared by the Comparison Set members, not is related in some conventional way to the Comparison Set members (Bale 2008, B. Schwarz 2010).

(53) a. Mia is tall *for a three-year old*. [Mia being a three-year old girl]

b. Mia told us a story. This story is sophisticated *for a three-year old*. [≈ for a story associated to a three-year old]

c. #Mia is tall for a cat.

This can be fixed by restricting the domain of the individual argument of the POS-function to individuals that belong to the Comparison Set.[30]

(54) $[\![POS]\!]^{c,w} = \lambda$C . λR . λw . λ x **:** **x**$\in$**C** . $\exists$d[R(d)(x) & d > Std(C)(R)].

The effect of this presupposition is that *big-POS-C pig* denotes a partial function, with its domain being equal to the Comparison Set. This, of course, means that the extension of *big-POS-C pig* in a given world is a subset of the Comparison Set.

This is the first step in establishing what goes into the calculation of extension of a predicate with a context-sensitive positive gradable adjective in a given world. Recall that the general agenda is to find what the semantics of POS should be like in order to give rise to a specific semantic effect similar to that of superlatives — guaranteeing uniqueness relative to a context.

5.5.3 Nominal property of the Comparison Set members

Requiring that the domain of the function denoted by *big-POS-C pig* equal the Comparison Set has only one effect: in those worlds for which the function is defined, the extension

[30] This parallels what is done in Bale (2008), B. Schwarz (2010) for the case of overt domain restrictors of POS such as *for a 3-year old*.

of our predicate characterizes a subset of the Comparison Set. The extension, however, does not have to be the same in all worlds. For instance, let us consider the following scenario: a Comparison Set in world 1 in Fig. 5–6 contains two pigs and a dog. Given this Comparison Set, it is easy to calculate that *big-POS-C pig* denotes uniquely. Imagine then world 2 where the member that is a dog in world 1 is a pig, Fig. 5–7. The expression *big-POS-C pig* does not denote uniquely in this case, as there are two pigs of the same size of 60kg.

Figure 5–6: A condition on the members of the comparison set: W1

Figure 5–7: A condition on the members of the comparison set: W2

It seems, however, that we are not dealing with the same Comparison Class in world 1 and world 2. The problem illustrated in Figs. 5–6 and 5–7 does not arise if all members of the Comparison Set are required to have the nominal property. Let us introduce a definedness condition, already employed in the case of Heim's (1999) *-est*, that all the members of the Comparison Set have the gradable property in question. In our example case this means that all members of C are required to be pigs related to some degree d on the scale of size introduced by the adjective.

(55) $[\![POS]\!]^{c,w} = \lambda$C . λR **:** $\forall$**y**$\in$**C** $\exists$**d[R(d)(y)]** . λ x : x$\in$C . $\exists$d[R(d)(x) & d > Std(C)(R)]

This condition guarantees in worlds where the function denoted by [*big-POS-C pig*] is defined, the members of C have the relevant gradable property. In the case at hand they are pigs of some size or other. Just as in the case of the presupposition that the positive gradable predicate hold only of the members of the Comparison Set, this condition is relevant for our quest for the conditions under which [*big-POS-C pig*] denotes at most a singleton in all worlds.

So far the following can be said about the extension of a context-sensitive positive gradable predicate in a given world assuming a particular Comparison Set C: the extension is comprised only of the members of C, and all members of C have the property denoted by the nominal predicate. That is, such [AP + NP] has an extension, it is always a subset of the Comparison Set. Given these assumptions, which make the semantics of positive modifiers be parallel to that of Heim's 1999 superlatives, the question is whether the cardinality of the extension of a context-sensitive positive gradable predicate is the same in all worlds in a given context. The "yes" answer would mean that we have established which properties POS should have in order for positive gradable adjective to pattern similarly to superlatives in Swedish. Obviously, the answer is "no".

5.5.4 Measures of the Comparison Set members

Let us consider a scenario where, within a given Comparison Set, the weight of a pig is different in world 1 than in world 2.

Figure 5–8: A condition on the measures of the Comparison Set members: W1

Figure 5–9: A condition on the measures of the Comparison Set members: W2

The cardinality of the extension of *big-POS-C pig* is 1 in world 1 in Fig. 5–8 and 2 in world 2 in Fig. 5–9. This means that the cardinality of the extension of a felicitously uttered predicate with a context-sensitive positive gradable modifier cannot be expected to be the same in all worlds on the semantics of POS that we have.

On the other hand, if we could make sure that the sizes of the Comparison Set members do not change across the relevant worlds (i.e. those where the predicate has an extension), we would obtain a context-sensitive positive gradable predicate whose extension would have the same cardinality in all worlds. This is because, given (55), the extension of a positive gradable predicate in a given relevant world characterizes a subset of the Comparison Set, and the cardinality of this subset is determined by the measures of the compared individuals and nothing else. That is, the cardinality of the extension corresponds to the number of individuals who have measures equalling or exceeding the Standard of Comparison, which itself is a function of the measures of the Comparison Set members.

Let us explore this option: fixing the measures of the Comparison Set members across worlds. Formally this can be implemented as a felicity condition on the use of the POS morpheme, namely that the measures of the Comparison Set members be fixed across all possible worlds. In order to be able to formulate this meaning contribution of POS, we need to depart from the standard assumption that Comparison Sets, for the interpretation of POS, are sets of individuals.

Let us instead assume that a Comparison Set is a set of ordered pairs where the first member denotes an individual, and the second member corresponds to the measure of that individual on the relevant scale in the actual world (e.g. $<e_1$,30kg$>$ where e_1 stands for the name of a particular individual). Given this definition, we can modify the condition on the second argument of POS, requiring that the individual from each pair be related to the

degree corresponding to its measure on the scale in the actual world, and that it must not be related to any degree that exceeds the degree in question.

(56) $[\![POS]\!]^{c,w}$ = λC . λR : $\forall$<**x,d**>$\in$**C[R(d)(x) & $\forall$d′$\geq$d[$\neg$R(d′)(x)]]** . λ x : $\exists$d[<x,d>$\in$C] . $\exists$d[R(d)(x) & d > STD(C)(R)]

For instance, let us the following Comparison Set: {<e_1,30kg>, <e_2,30kg>, <e_3,60kg>}. Then a necessary condition for $[\![POS\ C\ AP\ NP]\!]$ to be defined in a given world w is that that e_1, e_2 and e_3 not be related in that world to any degree exceeding 30kg and 60 kg respectively.

With the semantics of POS as in (56), for any given Comparison Set, the extension of a context-sensitive positive gradable predicate will be the same in all worlds, including a particular case when the cardinality is 1.

On this approach the basis for context-sensitive positive gradable modifiers sometimes patterning with superlatives with respect to DEN-omission are the felicity conditions on the use of POS, encoded as part of its lexical entry. Given the new semantics of POS in (56), we can be sure that [AP + NP] with context-sensitive positive gradable modifiers satisfy the working condition on DEN-omission, repeated from (46).

(57) [Δ AP + NP] is acceptable with respect to a pair c, w if and only if
$|[\![AP\ +\ NP]\!]^{c,w}| = 1$ & $|[\![AP\ +\ NP]\!]^{c,w'}| \leq 1$ for all w′ where $[\![AP\ +\ NP]\!]^{c,w'}$ is defined.

Here is an illustration for the case of *stora grisen* 'big pig' relative to a context which provides a Comparison Set as above, namely {<e_1,30kg>, <e_2,30kg>, <e_3,60kg>}.

(58) $[\![POS\ C\ \lambda_1\ t_1\ big\ pig]\!]^{c,w}$ is defined iff
$\forall$<x,d>$\in$C[$[\![\lambda_1\ t_1\ big\ pig]\!]^{c,w}$(d)(x) & $\forall$d′$\geq$d[$\neg[\![\lambda_1\ t_1\ big\ pig]\!]^{c,w}$(d′)(x)]
if defined, $[\![POS\ C\ \lambda_1\ t_1\ big\ pig]\!]^{c,w} = \lambda$x : $\exists$d[<x,d>$\in$C] . $\exists$d[$[\![\lambda_1\ t_1\ big\ pig]\!]^{c,w}$(d)(x)
& d > STD(C)($[\![\lambda_1\ t_1\ big\ pig]\!]^{c,w}$)]

To put it in words, the whole predicate has a denotation in a world w′ if an only if all members of C are pigs of some size or other, and the size of e_1 and e_2 does not exceed 30kg, and the size of e_3 does not exceed 60kg in w′. In case the predicate has a denotation in w′, the function it denotes is defined only for individuals in w′ which are members of C (either e_1, e_2 or e_3).

Let us say the Standard of Comparison STD(C)($[\![\lambda_1\ t_1\ \textit{big pig}]\!]^{c,w}$) in the actual world is 60kg. Then the property denoted by the function holds of a single individual in the actual world, namely, of e_3, whose size equals the Standard. This means that the extension of this [AP + NP] in the actual world is a singleton. Now, in all worlds where $[\![\textit{POS C}\ \lambda_1\ t_1\ \textit{big pig}]\!]$ has a denotation, the sizes the the Comparison Set members are exactly the same as they are in the actual world and all of them have the gradable property of being a pig of one size of another. Therefore, in all such worlds the Standard of Comparison STD(C)($[\![\lambda_1\ t_1\ \textit{big pig}]\!]^{c,w}$) is 60kg (since it is a function of the measures and a particular scale and nothing else). This, in turn, entails that in all worlds where the predicate denotes, it denotes a singleton. To put it more dramatically, in order for our predicate to denote in w′, given the context we have specified, it must denote a singleton. But this is of course what (57) requires in order for DEN-omission to be possible.

In the next section I take stock of the empirical coverage of the "necessary uniqueness" hypothesis, and then move on to discussing it in the larger perspective of the theory of context-sensitive modifiers.

5.5.5 A prediction borne out

The current hypothesis also makes a correct prediction about DEN-omission with predicates which involve, in addition to context-sensitive modifiers, some context-insensitive ones. One way to look at DEN-omission is, roughly, by associating a diacritic with a certain class of adjectives, those that are found to license the omission. On this view DEN-omission is triggered by the presence of a particular modifier, and it is not necessarily the

case that there is a general semantic condition on the omission. The presence of *stora* 'big' in the prenominal position then should be enough to license DEN-omission.

In contrast, above I have been developing a semantic characterization of the pattern, which consists in identifying a particular semantic, rather than morphosyntactic, configuration that makes DEN-omission possible. On the condition in (57) we of course predict DEN-omission only for a subset of [AP + NP] with *stora* 'big', namely those whose extension is at most singleton in all relevant worlds with respect to a given context. I show below that simply the presence of *stora* 'big' in the prenominal position does not license DEN-omission, and that (57) makes an accurate prediction as to the possibility of the omission. Consider the following example.

(Context: Peter has four pigs on his hobby farm. The three bigger pigs are of the same size, but only one of them has spots on its back. He is showing the pigs to his friend Sven and says,)

(59) Jag ska ta **den stora gris-en** med fläckar till en tävling.
I will take DEN big pig-EN with spots to a contest
'I will take the big pig with spots to a contest.'

In (59) the nominal predicate of interest is *[[stora grisen] med fläckar]* 'big pig with spots', where brackets indicate the assumed (and the only one that makes sense in the context specified) constituent structure. Provided the context supplies a Comparison Set that consists of three bigger pigs of the same size and a smaller one, and provided only one pig among the three bigger ones has spots, the extension of the whole nominal expression in the actual world is a singleton. Therefore, the definite article (DEN) with a Fregean semantics can be used.

Let us see whether [AP + AP + NP] in question can satisfy the condition on DEN-omission. By hypothesis, in order for this to be possible, its extension has to be at most a singleton for all worlds given a particular context. Consider in Fig. 5–10, where two big pigs have spots and the extension of our predicate involves two individuals.

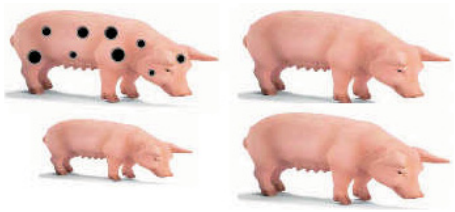

Figure 5–10: Fluctuating cardinality of the extension! W1

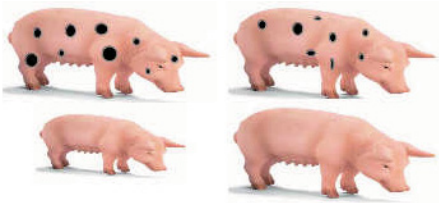

Figure 5–11: Fluctuating cardinality of the extension! W2

This means that the cardinality of the extension of the predicate differs depending on the world of evaluation. Our hypothesis rules out DEN-omission in this case. This prediction is rather strikingly confirmed, as (60) shows, which is out in the same context in which (59) is felicitous.

(60) Jag ska ta ***(den) stora gris-en med fläckar** till en tävling.
I will take *(DEN) big pig-EN with spots to a contest
'I will take the big pig with spots to a contest.'

Despite the presence of *stora* 'big', DEN-omission is not licensed, as predicted by the current account on which DEN-omission is made possible not by the mere presence of a particular modifier, but rather by the predicate's extension being a singleton with respect to a given context in all relevant worlds.

We find the same effect in the following pair of examples, where (61), which contrasts with (62) in that it involves an additional adjective *vackra* 'beautiful'.

(61) Jag tycker om **(den) norra strand-en**.
I like of northern DEN shore-EN
'I like the Northern shore.'

(62) Jag tycker så mycket om ***(den) vackra norra strand-en**.
I like so much of DEN beautiful northern shore-EN
'I like the beautiful Northern shore.'

While the prediction is borne out, the "price" of the current hypothesis turns out to be quite high in terms of what predictions it makes for the general patterning of context-sensitive positive forms. In the next section I propose a weaker version of (57) which relies on the interaction of the semantics of a modifier with the Common Ground. Abandoning the "high" road of superlatives, I will propose that we do not actually need a stronger condition on DEN-omission than that on the composition with DEN. The relative rarity of DEN-omission compared to the use of DEN falls out on the assumption that DEN provides a domain restrictor for the uniqueness quantification, which makes the uniqueness condition easier to satisfy. The discussion of DEN-omission thus becomes the discussion of the domain restrictor placement in definites.

5.5.6 Other context-sensitive modifiers

On the "necessary uniqueness" hypothesis I developed above, [AP + NP] with superlatives, ordinals and context-sensitive positive gradable modifiers allow for DEN-omission because, provided the right context, in all worlds where $[\![AP + NP]\!]^{c,w}$ is defined, the cardinality of their extension can be at most a singleton. I have shown that a context is good enough for superlatives and ordinals as long as it provides a singleton set of sets of individuals as a Comparison Set, whereas positive adjectives are pickier in that a context has to provide a Comparison Set such that only one member stands out on the relevant scale. But once the right Comparison Set is provided, both types of modifiers can guarantee the extension with the cardinality of at most 1.

So far the discussion focused on the modifier *stora* 'big', but the account is of course supposed to be extendable onto other context-sensitive adjectives. Indeed, modifiers such as *korta* 'short', *gamla* 'old', *nya* 'new', *lilla* 'small' can also license DEN-omission. DEN-omission with some of them is illustrated below.

(Context: Björn's parents have bought a new car. His father says,)

(63) Jag undrar om Björn kommer gilla nya bil-en.
I wonder if Björn comes like new car-EN
'I wonder if Björn is going to like the new car.'

(64) Peter har sålt gamla gris-en till sin granne.
Peter has sold old pig-EN to his neighbour
'Peter has sold the old pig to his neighbour.'

(65) Peter har sålt lilla gris-en till sin granne.
Peter has sold small pig-EN to his neighbour
'Peter has sold the small pig to his neighbour.'

5.5.7 The placement of a domain restrictor

The discussion so far involved a certain implicit but crucial assumption, namely that at the level of NP there is nothing that could restrict the domain of quantification. Let us see what the consequences of placing a domain restrictor at the NP-level would be. Specifically, placing a restrictor at the NP-level predicts that [AP + NP] with any modifier will be able to satisfy (57), and that there should be no difference in this respect between context-sensitive and context-insensitive modifiers. This is because in a context which provides a set C that contains only one individual, [AP + NP-C] will denote a singleton in all worlds where this individual has the relevant property. In the complement set of worlds it will denote the empty set. In either case such [AP + NP-C] will satisfy (57). For instance, in case C in the example below is assigned a singleton, (66) will denote at most a singleton in all worlds.

(66) striped carpet-C

We then expect DEN-omission in Swedish in such cases. But we do not find it, as (67) shows repeated from (8).

(Context: Anika has two fine carpets in her house, one striped and one dotted. She wants to give one as a wedding gift to her friend Wilma. She asks her husband,)

(67) Tror du att Wilma skulle vilja ha *(den) **randiga tapet-en**?
believe you that Wilma should want have *(DEN) striped carpet-EN
'Do you think that Wilma would like to have the striped carpet?'

That means that based solely on the Swedish pattern, a domain restrictor must not be associated with the NP-level. Otherwise we cannot cut the pie in the right way with regard to DEN-omission with context-sensitive and context-insensitive modifiers.

This leaves us with just two options for placing domain restrictors in the object language, namely, either at the AP-level (i.e. the comparison set variable) or else at the D-level. But this now offers a whole new perspective on the possibility of analyzing DEN-omission. What if all that is needed is that [AP + NP] satisfies a "regular" Fregean uniqueness presupposition, but in the absence of a domain restrictor at the D-level? This condition seems strong enough to rule out (67): *randiga tapeten* 'sriped carpet' will meet the uniqueness presupposition just in case a given Common Ground entails that there is just one striped carpet. This is a very strong statement. It is not surprising, therefore, that DEN-omission is impossible in (67), simply because in one of the context set worlds there may well be another striped carpet. At the same time, simply requiring the uniqueness presupposition to be met is a much weaker condition than (57), which requires necessary uniqueness. All that would be required of a context-sensitive modifier is that it be part of the Common Ground that there is just one individual passing the Standard in the Comparison Set C. We would not have to worry so much about the semantics of POS making sure the Comparison Set stays the same across possible worlds.

In the next section I show that this is a welcome change of perspective because the current condition on DEN-omission, while capturing the main pattern and making a correct prediction about cases such as the one in (60), also makes some undesired predictions due to what it requires of the semantics of POS.

5.6 Possible uniqueness

5.6.1 Consequences of fixing the Comparison Set measures

Summing up the previous discussion, I formulated the "necessary uniqueness" hypothesis whereby the condition on DEN-omission corresponds to the requirement that the predicate must denote at most a singleton in all worlds with respect to a given context if it does so in the actual world. The starting idea was that there is something special about the semantics of DEN-omission licensing modifiers which makes them satisfy some stronger condition than simply uniqueness required by DEN. Initially the formulation of the condition emerged from the examination of the semantic properties of predicates involving superlatives. The task was then to establish how other types of modifiers satisfy the condition in question, in particular, context-sensitive positive gradable modifiers. I showed what the semantics of POS can be like for context-sensitive positive gradable predicates to satisfy the condition. It turned out that it requires, along with a couple of quite plausible conditions, that the measures of the Comparison Set members be in all possible worlds what they are in the actual world. One consequence of the resulting semantics of POS is that in worlds where a predicate involving only context-sensitive positive gradable adjectives has an extension, the extensions are identical.

(68) For any c and for any w and w′ such that the function denoted by [POS d big pig] is defined,
$[\![POS\ C\ d\ big\ pig]\!]^{c,w} = [\![POS\ C\ d\ big\ pig]\!]^{c,w'}$

But this is the definition of a rigid designator understood as an expression whose denotation is the same across evaluation points and is insensitive to intensional operators. That is, we ended up predicting that Fregean definites involving [AP + NP] with context-sensitive positive gradable modifiers will behave as rigid designators, and, specifically, will be scopeless, to use the term of Heim (2004). It is not hard to see that this is not correct. Such predicates are perfectly sensitive to intensional operators, as the following example shows where the

denotation of *the big piece* covaries with the time period/situation variable quantified over by *always*.

(69) When offered two pieces of cake, little Karl always chooses the big piece.

Next, notice that the definedness condition in (56) that the measures of the Comparison Set members stay the same presupposes the condition that *the information about measures of the Comparison Set members is part of the Common Ground*. Unless such information is part of the Common Ground, the condition is not verifiable. But this is not a prerequisite for the use of positive gradable predicates, as the following run-of-the-mill example illustrates.

(70) Out of a litter of puppies, Bill picked the big puppy.

In order to use this example felicitously, the actual sizes of puppies in a given litter do not have to be part of the Common Ground. In contrast, the requirement that the individuals satisfying a positive gradable predicate need to be members of the Comparison Set stays relevant, as the strangeness of the following example violating this condition illustrates.

(71) #Out of a litter of kittens, Bill picked the big puppy.

The condition about constancy of measures seems therefore to impose too strong a requirement on the Common Ground. In addition, making the measures of the Comparison Set members be necessarily the same as they are in the actual world wrongly predicts the infelicity of counterfactual claims such as the following one.

(72) This big puppy could have been much bigger.

All this strongly suggests that it is worth reconsidering the condition on DEN-omission in the way that was already sketched in 5.5.7. The new solution, which reconciles the condition on DEN-omission with the general theory of context-sensitive gradable predicates, will also make a new contribution to the theory of domain restrictions in the nominal projection.

5.6.2 Ordinary uniqueness presupposition of a silent article

To put it simply, the previous discussion showed that making sure that context-sensitive positive predicates can satisfy the condition on DEN-omission in (57) involves some assumptions about the semantics of the positive morpheme which give rise to wrong predictions about its use otherwise. I therefore take a step back to see whether we actually need the condition to be so strong, or whether something weaker can in fact be enough to capture the relevant patterns. Recall that we want it to come out of how we formulate the condition that context-sensitive modifiers can license DEN-omission in contexts where context-insensitive modifiers cannot, in particular, in contexts involving a contextually given situation where only one individuals satisfies the [AP + NP] description.

Let us take another look at the condition that DEN imposes on [AP + NP], repeated below from (12).

(73) [DEN [AP + NP]] is acceptable with respect to a given κ if and only if
$|[\![AP \ + \ NP]\!]^{c,w'}| = 1$ in all w′∈κ

An immediately relevant observation in this respect that it is not actually entirely accurate that [AP + NP] has to denote uniquely in all context set worlds in order to be composed with DEN. As the classic discussion in Barwise and Perry (1983) demonstrates, all definite descriptions require is that the uniqueness obtains with respect to some domain much smaller than a world. How the domain restriction obtains has been a matter of debate. In particular, among those who argue in favour of syntactically represented domain restrictors, it has been proposed that the domain restrictor appears at the level of the quantifier, either as a silent set pronoun (or a function thereof) (e.g Westerståhl 1985, von Fintel 1994, Martí 2003) or as a silent situation pronoun (e.g. F. Schwarz 2009). Alternatively, it has been proposed that the restrictor corresponds to a silent set pronoun at the NP-level, which has the effect of making the NP denote a proper subset of $[\![N]\!]$ (e.g. Stanley and Gendler Szabó 2000, Stanley 2002). A recent discussion of this option in comparison to placing a domain

restrictor at the DP-level from the point of view of the general theory of definite descriptions is done, for instance, in F. Schwarz (2009).

Without reviewing the discussion, I simply import here the conclusion reached in 5.5.7 that unless domain restrictors at the NP-level are ruled out, we cannot capture different patterning of adjectives with respect to DEN-omission. This held within the "necessary uniqueness" approach to DEN-omission, and I will show below that it holds within the new "possible uniqueness" approach as well. I therefore assume that a domain restrictor comes with the quantifier, in our case, with the definite article. Then (73) can be amended as follows, where s is a domain pronoun and g a variable assignment (I am glossing over compositional details; these are spelled out in F. Schwarz (2009) for the situation semantics approach).

(74) [DEN [AP + NP]] is acceptable with respect to a given κ if and only if for all $w' \in \kappa$ there is $s \subset w'$ s.t. $|[\![AP + NP]\!]| = 1$ in s

Now, what if the condition on DEN-omission corresponded to the requirement imposed on its complement by a silent article that is just like the regular article except that it does not come with a domain restrictor? Then the condition on DEN-omission looks as follows, where Δ stands for a silent definite article with Fregean semantics.

(75) [δ [AP + NP]] is acceptable with respect to a given κ if and only if $|[\![AP + NP]\!]| = 1$ in all $w' \in \kappa$

Recall that on the "necessary uniqueness" hypothesis, the fact that DEN-omission cases are a subset of the cases where DEN can be used was explained in terms of the relative strength of the "necessary uniqueness" in comparison to the uniqueness presupposition imposed by the definite article. While the former required that [AP + NP] denotes uniquely with respect to any Common Ground once contextual parameters are set, the latter is satisfied

simply if a given Common Ground happens to be of the right kind, without imposing any conditions onto other Common Grounds.

However, it turns out that we do not need to recur to "necessary uniqueness" if there is a domain restriction parameter; simply the contrast in the presence/absence of a domain restrictor can give rise to an entailment relation between otherwise identical conditions, therefore capturing the subset-superset relation between DEN-omission and DEN-use. As is clear from comparing (74) and (75), cases where [δ [AP + NP]] is acceptable are a subset of the cases where [DEN [AP + NP]] is acceptable: if a predicate denotes uniquely with respect to a world, it denotes uniquely with respect to a domain within that world as well. If there is a unique dog in a world, it is going to be unique in any part of that world. This explains then the subset-superset relation between DEN-omission and DEN-use cases, or, in other words, why in all those cases where DEN-omission is allowed, DEN can still be used, whereas DEN cannot always be omitted.

Moreover, it now becomes easy to see where the contrast between context-sensitive and context-insensitive modifiers comes from. The relevant aspect of the semantics of context-sensitive positive gradable modifiers is that they "carry around" a domain restrictor under the form of a Comparison Set. The version of (74) with a context-sensitive positive gradable modifier looks as follows.

(76) [δ [POS-C AP + NP]] is acceptable with respect to a given κ and a variable assignment g if and only if
$|[\![POS\ C\ AP\ +\ NP]\!]| = 1$ in all w′$\in\kappa$

Given the more classic version of POS in (51), [δ [POS-C AP + NP]] is acceptable in case there is just one individual in C passing the Standard. Once again, this is an easier condition to satisfy than (75) if there is no domain restriction and [AP + NP] has to denote uniquely in a world.

A straightforward prediction of this proposal is that if [AP + NP] with any sort of modifier denotes uniquely with respect to a given Common Ground, DEN-omission should be possible. [AP + NP] with a context-sensitive predicate denoting uniquely is of course a strong condition, but it has to be satisfiable at least in some cases. And this turns out to be a welcome consequence since it takes care of predicates which looked like proper names, as in (77) repeated from *amerikanska*.

(77) Misslyckande-t om att nå en kompromiss i kongress-en om budget-en
failure-EN of to reach a compromise in Congress-EN of budget-EN
skakar USA och debatteras i **amerikanska Senat-en**.
shakes USA and gets.discussed in American Senat-EN
'The failure to reach a compromise in Congress about the budge shakes up the USA and is being discussed in the American Senate.'[31]

This is also confirmed by examples such as the one in (78), which can now be analyzed as one of those relatively rare cases where [AP + NP] with a context-insensitive adjective can have a singleton extension in all context set worlds. The case in (78) corresponds to what Hawkins (1978) called "larger situation" uses of definites.

(78) Så när det gäller **svenska skola-n**, menar jag att jag har all rätt att
so when it concerns Swedish school-EN mean I that I have all right to
uttala mig.
express me
'So when it comes to the Swedish school (= school system, A.S.), I think that I have all the right to express myself.'[32]

If the analysis of these examples is on the right track, it has the potential to cover a vast empirical ground, since [AP + NP] is a very productive pattern of proper name formation in Swedish. The condition on DEN-omission that the predicate denotes at most a singleton

[31] http://www.tv4play.se/program/nyheterna?video_id=2456305

[32] http://www.gluefox.com/kontr/skola.shtm

in all context set worlds then explains the origin of proper names with all kinds of modifiers. All these are cases in which [AP + NP] denotes uniquely in all context set worlds.

One immediately noticeable shortcoming of the new analysis is that we lose the predicting power concerning the pattern in (59) and (60), repeated below in (79) and (80) respectively.

(Context: Peter has four pigs on his hobby farm. The three bigger pigs are of the same size, but only one of them has spots on its back. He is showing the pigs to his friend Sven and says,)

(79) Jag ska ta **den stora gris-en** med fläckar till en tävling.
I will take DEN big pig-EN with spots to a contest
'I will take the big pig with spots to a contest.'

(80) Jag ska ta ***(den) stora gris-en med fläckar** till en tävling.
I will take *(DEN) big pig-EN with spots to a contest
'I will take the big pig with spots to a contest.'

Assuming that all that DEN-omission requires is that the Common Ground entail the existence of a unique big pig with spots, (80) should be grammatical in the scenario specified (just one pig with spots among the two passing the Comparison Standard), contrary to the fact. Perhaps here we enter the territory of syntactic factors, such as the position of the element bearing a domain restrictor within the extended nominal projection. There could be a solution along the lines of what is proposed by Svenonius (1994) for DEN-omission in Norwegian, whereby it involves an adjective from the class of omission-licensers occupying the D-position. In case such an adjective is not in D (in all cases where there is an additional, c-commanding modifier), DEN-omission is predicted to be impossible.[33] Factoring this

[33] Since in Norwegian DEN-omission is essentially limited to superlatives and ordinals, Svenonius's (1994) analysis is based on the intuition about these modifiers guaranteeing uniqueness, rather than providing a domain restrictor.

condition into the semantics of DEN-omission I developed requires more work. I leave this question for future research.

5.6.3 Other modifiers licensing DEN-omission

I have not dealt with DEN-omission licensing modifiers such as *norra* 'Northern', *västra* 'Western', *östra* 'Eastern', *södra* 'Southern', *högra* 'right', *vänstra* 'left' and some others. At least the first two can be seen as types of ordinals. It seems that the relevant property of the other ones is that they are definitely context-sensitive. I leave the exploration of the exact composition of the corresponding [AP + NP] to further research. The table in the appendix summarizes results of the search for DEN-omission in a sample of the Swedish PAROLE corpus (about 120 million word forms).

5.7 Conclusions

The aim of this chapter was to flesh out formal conditions under which the free-standing article DEN can be omitted in Swedish. I explored two hypotheses: first, that the key to DEN-omission is the semantics of modifiers involved in the pattern, and, second, that DEN-omission is all about the unavailability of a domain restrictor at the D-level when there is not overt article.

Based on the case of superlatives, I started out with a condition that [AP + NP] should to denote at most a singleton in all contexts and worlds. This turned out to be too strong even for superlatives, which in certain contexts seem to denote a set greater than a singleton. The condition was consequently weakened to require at most a singleton extension for all worlds in a given context. I pursued the "necessary condition" hypothesis to its logical end by showing that if we wanted to group positive context-sensitive modifiers with superlatives as guaranteeing uniqueness, we had to assume that the semantics of POS made sure that the Comparison Set stayed fixed across worlds. Eventually, however, this created problems as such semantics of POS effectively made positive predicates rigid designators, which was not fit for general purposes.

I then pursued a different route, which is based on a simple but powerful insight that in the absence of a domain restrictor at the D-level, a plain uniqueness presupposition becomes very difficult to satisfy, thus giving us the required strength of the DEN-omission condition. I proposed to capture this in the form of a silent definite article which is in all respects like its overt counterpart except that it is devoid of a domain restrictor. The formalization of the DEN-omission condition as requirements on the use of a silent definite article without a domain restrictor captures the largest set of cases without making wrong predictions for the patterning of positive gradable adjectives in general.

Moreover, such a condition captures a subtle and otherwise puzzling *quantitative* difference between DEN-omission with context-sensitive adjectives and context-insensitive adjectives. In principle, the silent article can be satisfied by a context-sensitive adjective as well, but it is simply much more rare that [AP + NP] without any contextual domain restrictors denotes uniquely in a given Common Ground (recall the problem of overly strong descriptions, which gave rise to the theory of nominal domain restrictors in the first place) than that [POS-C AP + NP] denotes uniquely (possible if measures of the members of C are part of the context set worlds). So the apparent quantitative gradient shows up not because there are no formal grammatical conditions on DEN-omission, but because the real world is such that the circumstances under which the silent article can be used with context-sensitive predicates are more frequent than the circumstances under which it can be used with "plain" [AP + NP]. In a sense, in this chapter we discovered an article which looks like it comes straight from that point of a semantic textbook where the problem of restricting quantification domains has not been yet introduced (Heim and Kratzer 1998: 75). We understand if that version were the only one available, we would be restricted to talking about the sun, the moon, and the like, but not a unique table that we have or a unique cup of coffee on that table, simply because the presupposition of domain-less article is unsatisfiable in that case.

Another novel result of this work is that having a temporary global restriction of the domain of individuals is not an option in Swedish — it crucially needs to be part of the LF. In order to prove the contrary, one would basically need to explain why DEN-omission is not available in all the contexts where DEN can be used. It was previously shown that we need syntactic domain restriction in our model in order to capture quantifier domain covariation, as in the following classic example from von Fintel (1994: 31). In (81) the domain of the quantified expression *no student* covaries with the denotation of subject eNP *only one class*.

(81) Only one class was so bad that no student passed the exam.

However, in this chapter I demonstrated on the case of Swedish that not only do we need syntactically represented domain restrictors, but that this is the only domain restricting option we can allow for in our model if we want to avoid overgeneration. The Swedish data made it possible to test whether domain restriction is an option in case a definite article provides no domain restriction because Swedish seems to possess an article of just the right kind for this experiment.

Recall the DEN-omission is restricted to singular eNPs. Of course the question of what this restriction is due to begs for an explanation. The discussion in this chapter has been simplified in that the semantics of definite articles I assumed was not suited to deal with plural definites. The latter are often handled by assuming that a definite article presupposes maximally, rather than uniqueness, which requires that the [AP + NP] description hold of the maximal individual. If our silent article indeed presupposed maximality, it seems that we would predict its use in many cases where reference is made to all individuals satisfying the property in question (e.g. all trees in the world, all continents etc.). The fact that we do not find DEN-omission with plurals perhaps indicates we need to distinguish between the maximality presupposition of overt definite articles, and a uniqueness presupposition

of our hypothetical silent article. If this turns out to be on the right track, then the silent article comes out as even more "rudimentary" than before.

A major conclusion of this project is that in the perspective of Swedish DEN-omission, the role of an overt definite article is reduced to introducing a domain restrictor. But of course this cannot be the whole answer, since we do not find *the*-omission in English. We do not find it even in closely related Danish. Thus, from the micro-comparative perspective, it is the presence of the suffixal article which makes DEN-omission possible in Swedish, since Danish does not retain the article in the presence of prenominal modifiers. And even that will not suffice to explain what makes the article omission available, since Norwegian, which, like Swedish, has double determination, allows DEN-omission with a much more limited range of modifiers, completely excluding context-sensitive positive gradable adjectives. We might need to return to the strongest version of the DEN-omission condition for Norwegian, which requires [AP + NP] to denote at most a singleton with respect to all context-world pairs.

Lastly, one of the most intriguing remaining questions is how domain restriction obtains in the case of *unmodified* definites in Swedish, that is, suffixed nominals such as *gris-en* ('the pig'), whose distribution is very similar to that of regular English *the*-eNPs, and if the conclusion turns out to be that it is the role of the suffix, how to reconcile this with the present proposal that in the absence of DEN domain restriction is unavailable in *modified* definites.[34]

[34] Thanks to Florian Schwarz for raising this issue.

CHAPTER 6
Conclusions

In this dissertation I examined a number of phenomena relevant for understanding of the nature of directly referential expressions and domain restriction in definites. In Chapter 2 I proposed an analysis of the ban on wh-subextraction out of strong-eNPs in Austro-Bavarian which assumes their direct referentiality. The subextraction was proposed to be ungrammatical because it can lead only to questions which cannot have informative answers in any Common Ground. I labelled such questions as having "zero information-seeking potential". In terms of their interaction with the Common Ground questions formed by wh-subextraction out of strong-eNPs turned out to be very similar to Oshima's (2009) questions formed by wh-extraction out of certain complements of factive predicates. One of the results of the analysis is that wh-subextraction can now be used to test direct referentiality.

In chapter 3 I made a case for syntactic representation of components responsible for direct referentiality based on the alternation between directly referential and covarying readings of eNPs with strong articles in Austro-Bavarian depending on the syntactic context. Having an object language representation of the triggers of direct referentiality — silent individual pronouns — allows for an economic explanation of the "loss" of direct referentiality on the assumptions that these components compete for the same syntactic slot with restrictive relative clauses. It remains to be understood what is special about restrictive relative clauses that makes them capable of "knocking out" direct referentiality and why, for instance, simple adjectives do not have this property. Besides capturing alternations, having syntactic access to the component that mediates the relation between the silent pronoun and the overall denotation has another advantage of capturing uses of strong articles with relational nouns. By assuming that relational nouns can replace the

otherwise silent relational component while their argument replaces the silent pronoun explains patterns which otherwise look idiosyncratic, such as the loss of direct referentiality without restrictive relative clauses and the unavailability of readings which would require binding of the silent individual pronoun by a higher quantifier. This analysis also captures relational anaphora, which on F. Schwarz's (2009) account necessitate a separate strong article entry.

By making the machinery responsible for the switches in direct referentiality syntactically explicit, I came to the conclusion that we do not need separate entries for definite articles, a Fregean definite D is enough to model all the patterns. In light of this conclusion we can talk about directly referential LFs, rather than directly referential articles or demonstratives. The only directly referential component we need to have as a building block of all kinds of definite expressions is a silent individual pronoun. In general terms, the relative complexity of the lexical entries on Elbourne's (2008) and F. Schwarz's (2009) accounts is now relegated to the syntactic structure. Interestingly, the intuition that demonstratives are syntactically definite descriptions *plus some additional projection(s)* has been around in the syntactic literature for a while (Bernstein 1997, Giusti 2002, Brugè 2002 among others). For instance, Alexiadou et al. (2007) propose that demonstratives are merged as in the specifier of a projection embedded within a "regular" definite DP and undergo a subsequent movement into the left periphery of eNP, where they check a [DEM] feature, responsible for direct referentiality. In general, Alexiadou et al. (2007:126-122) propose a decomposition of the eNP left-periphery into deictic heads and definite heads. The proposal I develop in this dissertation is novel in that it combines semantically explicit representation with a syntactically articulated structure: strong articles and demonstratives are proposed to be both syntactically and semantically a combination of a Fregean D with an additional functional projection.

Chapter 4 cashes out predictions of the proposal made in chapter 3. The property of imposing an anti-uniqueness requirement on the denotation of the NP I ascribed to

the relational component turned out to be a powerful predicting tool for the distribution of strong- and weak-eNPs with relative clauses in Austro-Bavarian. Namely, strong-eNPs were correctly predicted to be used in those cases when it is part of the Common Ground that there is more than one individual having the property denoted by the NP. The explanation of the distribution was needed because the generalization of Schwarz (2009) that strong-eNPs in German are used in anaphoric contexts does not apply to eNPs with restrictive relative clauses, as they do not require an antecedent. The later is another evidence in support of the "replacement" account laid out in chapter 3.

In chapter 4 I explored a topic bearing on the debate about the nature of domain restrictions in definites. A seemingly intricate pattern of the free-standing article omission in Swedish receives a very economic explanation on the assumption that it involves a silent definite article without a domain restrictor. Such an article is predicted to be used rather liberally with all kinds of modifiers that come with their own domain restrictor — superlatives, ordinals, positive context-sensitive modifiers, *enda* 'only'. This solution is predicated upon a principled unavailability of implicit domain restriction as well as of explicit NP-level domain restriction. This dissertation therefore makes a case for explicit syntactic representation of semantic mechanisms responsible for direct referentiality and domain restriction.

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