QUANTIFICATION, MISC.

A Dissertation Presented

by

JAN ANDERSSEN

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ABSTRACT

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This dissertation investigates various topics concerning the interpretation of determiner phrases and their connection to individual entities. The first chapter looks at a phenomenon called *telescoping*, in which a quantificational expression appears to bind a pronominal form across sentence boundaries, at odds with commonly assumed and well motivated constraints on binding. I investigate the limited circumstances under which telescoping is available and argue that the mechanism that makes it available should respect said locality constraints. In particular, I argue that the impression of co-variation arises not because of binding by the initial quantificational expression, but because an of independent, albeit unpronounced, quantificational operator in the second sentence. I will show cases where the domains of these two quantificational operators are independent, incompatible with approaches that assume a single operator. This result also entails that no reference to constructed individuals, e.g. prototypical or average individuals is needed.

In the second chapter, I look at the German lexical item *lauter* and argue that DPs headed by *lauter* are purely predicational. After presenting an overview of the various kinds of interpretations that a DP can receive, and some discussion objecting to the idea of treating these as cases of lexical ambiguity, I show data that illustrate that *lauter* DPs cannot receive many of these interpretations. At the end of the chapter, I speculate about ways in which purely predicative DPs may appear and be interpreted in some, but not all, positions that arguments typically occupy, resulting in a restricted distribution and less freedom in the range of

interpretations.

In the last chapter, I look at an instance of a semantically complex determiner, the English item *any*. Instead of adding to the discussion based on an investigation of *any*, I propose that this hidden semantic complexity has a transparent reflex in German, where the lexical item *überhaupt* spells out a logically independent part of the proposed meaning of *any*, namely its domain widening meaning.

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NOTATIONAL CONVENTIONS

Grammaticality judgments   I use the following convention to indicate grammaticality judgments of the sentences used as data points in this thesis. Unless indicated otherwise, for the German data, these judgments rely on my own intuition and limited informal surveys of other native-speakers. For this reason, no quantitative measure of certainty is reported. Examples taken from the literature are reported with the judgments given there.

An examples without any prefixed symbols is perceived as grammatical.

* An examples prefixed with an asterisk symbol is perceived as ungrammatical.

? The grammaticality judgment of an example prefixed with a question mark is perceived as less certain by the author. That is, examples prefixed with a single question mark are perceived as grammatical, and examples prefixed with a question mark and an asterisk as ungrammatical; the question mark indicates uncertainty about the judgment in both cases.

An example that is perceived as grammatical, but pragmatically deviant. This may be for a variety of reasons.

Indices   In some examples, nominal phrases bear subscripts. The subscripts indicate intended co-reference and binding relations. Identity of subscripts indicates co-reference or binding, lack of identity is intended to indicate lack thereof. Some examples are grammatical under one, but not the other. In these cases, ungrammaticality may be indicated with an asterisk on the subscript. There are a few cases where DPs are co-indexed with their movement traces. It should be clear from the context where this is the case.

Restricted quantification   I generally use the notation Q [R] [S] for the representation of restricted quantifiers (Q) with two arguments, a restrictor (R) and a nuclear scope (S), even when no semantics is given for a particular quantifier.

Intonation   In some examples, coarse intonational information is indicated by use of capital letters. I do not distinguish between different realizations or underlying phonological representations. Obviously, a more fine-grained look at the phonological properties of these examples would be desirable, but is beyond the scope of this dissertation.

CHAPTER 1

INTRODUCTION

All natural languages seem to allow their speakers to describe properties of, and express generalizations over various amounts of particulars. That is, while we can make claims about a particular individual having a particular property, we can also make claims about a larger number of individuals, not just by means of listing each particular instance, but by summarizing over them. Moreover, we can go beyond merely summarizing properties of known particulars and express generalizations over yet unknown instances, or ones that may not exist, something no list could accomplish. Broadly, this thesis is concerned with how to model this ability. In particular, three cases will be discussed, each of which, I believe, sheds some light on a different aspect of the ability of natural language users to refer to individuals and generalize over them. The goal of this thesis is not to develop a unified comprehensive framework, but rather to discuss some requirements that such a theory would have to satisfy and the implications for current theories of quantification.

1.1 Overview

In the first chapter, I will discuss a phenomenon known as *telescoping*. Telescoping describes a construction in which a universal quantifier in one sentence appears to bind a pronominal expression in a subsequent one. This construction has been taken to constitute evidence against representations of the universal quantifier that constrain its scope, the region in which the quantifier is able to induce co-variation on a pronoun, to the sentence. Instead, the argument goes, scope has

to be extendible beyond the sentence boundary, much in the way the apparent cross-sentential binding abilities of indefinites are construed in frameworks that represent them as so-called dynamic existential quantifiers. I will argue that this conclusion is not merited, and that there are, in fact, data incompatible with it. I will propose an account compatible with the assumption that the scope of universal quantifiers is limited to the sentence. Telescoping will be explained as binding by an independent, unpronounced operator.

While the first chapter may be seen as an argument against abandoning a classical representation of the universal quantifier, in the second chapter I argue against the assumption that all apparently quantificational items can be represented in a particular, "classical" way (that is, as instances of generalized quantifiers). There is a long-standing discussion in the philosophical and linguistic literature about whether particular determiner phrases (DPs) should receive a quantificational or a referential interpretation. The most well-known philosophical discussion centers around the interpretation of English definite DPs, following the works of Russell, Frege, Strawson, Donnellan and others. However, similar questions have been discussed with respect to indefinites. Here in particular the works of Heim and Kamp have provided frameworks that successfully challenged the assumption that indefinites contribute a component of existential quantification to the semantic representation. The second chapter is concerned with the range of interpretations that DPs can receive, and the extent to which a single underlying meaning for each DP can account for this range of meanings. I argue that a peculiar indefinite determiner in German, the word *lauter*, should be taken into consideration when looking at potential accounts here. I will argue that *lauter* appears to be a challenging case for the kinds of accounts that are most promising for capturing the range of interpretations of DPs, and will make some suggestions as to how one could attempt to integrate the presented data about *lauter* DPs into these accounts.

The last chapter starts by looking at an English lexical item that has received much attention in the previous literature, the determiner *any*. While I will not add to the large literature on *any*, I will take a particular class of proposals as my starting point, namely those that claim that *any* in its NPI-use has a complex meaning that combines an existential contribution with a *domain widening* one. I argue that if these two independent semantic elements are fused into a single morphological form in English, there is no reason why they shouldn't be lexicalized independently in another language. This expectation seems to be met by the German expression *überhaupt*. I argue that *überhaupt* is a generalized domain-widener. It can appear with an existential in downward entailing contexts, acting quite like English *any*, but it can also appear cross-categorically with other quantificational items, for instance with universals in upward entailing contexts, or in circumstances where constraints in the discourse are present that can be removed. For the purposes of the chapter, I treat these constraints as restricted domains that *überhaupt* widens.

Overall, I see this thesis as contributing to the growing cross-linguistic literature on quantificational items. Most of the novel data in this thesis come from German. As indicated in the beginning, for most data, I have made use of introspective grammaticality judgments. In instances where I was uncertain about my own intuitions, I have conferred with colleagues and friends. I treat grammaticality as a binary and non-gradable notion.[1] If a grammaticality judgment reported here is questionable for me, I have prefixed it with a question mark. Sentences marked with a single question mark are perceived as grammatical, ones marked with a question mark followed by an asterisk are perceived as ungrammatical. In both cases, the question mark indicates uncertainty about the judgment. Any other data sources will be mentioned at the relevant places throughout the text (these

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[1]This is obviously not meant to imply that other factors could not influence the perception of a grammaticality judgment, making it appear gradable.

are in particular experimentally gathered data in chapter two and corpus data in chapters two and three).

The remainder of this chapter is devoted to a very cursory discussion of some of the theoretical background of this dissertation. In particular, I will discuss the development of generalized quantifier theory. Even though many shortcomings of this cluster of theoretical assumptions are known, its remarkable success story has made it a commonly assumed standard for the representation of quantificational determiners in natural language.

1.2 Quantification and generalized quantifier theory

Many current introductory courses to the semantics of natural languages will approach the topic of quantification in natural language by introducing the theory of generalized quantifiers (e.g. Heim and Kratzer, 1998; Chierchia and McConnell-Ginet, 1990). To situate the origin of this now ubiquitous theory, the following section very briefly sketches three important developments in the theory of natural language quantification, the last of which being the advance of generalized quantifier theory (GQT).[2]

1.2.1 Early treatments of quantification

Expressions of quantity have been a part of the development of logic from its earliest origins. Even though, from a modern perspective, Aristotle's syllogistic system does not constitute a sufficient model of quantification, expressions of quantity are discussed there explicitly. For Aristotle, propositions in the syllogisms consist of a subject term and a predicate term. Propositions express judgements that either affirm or deny that the predicate holds of a certain quantity of the entities denoted by the subject term. The quantities that are distinguished in

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[2]For a similar introduction, much more complete in many places, see Westerståhl (2005).

Aristotele's syllogisms are universals and particulars. The four combination (universal affirmative, universal negative, particular affirmative, and particular negative) constitute his four syllogisms A, E, I, and O ('every X is Y', 'no X is Y', 'some X is Y', and 'some X is not Y' respectively).[3] Aristotle's division into subject and predicate terms in the logic, presumably inspired by the corresponding grammatically division, remained influential throughout the medieval logical tradition. While Aristotle's use of quantification in the syllogisms is very limited, in that he never uses more than one quantified term, and limits himself to monadic terms only, it is generally argued that no significant advances beyond this picture have been made until the 19th century.

1.2.2 The advance of quantification in logical languages

In 1879, Gottlob Frege published his *Begriffsschrift*. In the preface to the Begriffsschrift, Frege makes it very explicit that he is not concerned with developing a semantics for natural language, but with providing a formal language that can be used in its place, as a tool with a precise way of expressing knowledge and deducing its consequences. Frege cites Leibniz's idea of a *calculus philosophicus*, and compares natural language with the eye, versatile and broad in applications but full of imperfections that the mind must help to overcome, in contrast to his formal language which he compares to a microscope, very limited in its applications, but far superior in the tasks it is designed for.

In this spirit, Frege's approach is reductionist. He abandons any distinctions of natural language that he deems unimportant for a logical calculus. Frege sees the traditional dichotomy between subject and predicate as one such instance. The

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[3]There has been discussion about the logical relations among the syllogisms with respect to empty terms. In opposition what the above translations of syllogism O as 'some X is not Y' suggests, Parsons (2006), for instance, notes that Aristotle's O may lack existential import (a presupposition that the subject term is not empty), as seen in the common translation of O as 'Not every X is Y' (e.g. Ackrill, 1963). For the discussion at hand though, all that is supposed to be illustrated is Aristotle's use of subject and predicate terms as natural parts of the proposition.

meanings of verbs are seen as functions, each of their arguments provided by the meaning of a syntactic argument of the verb. Syntactic differences between the arguments are not considered relevant for the semantics. For transitive verbs, Frege views the difference between object and subject as purely information structural, and thus proposes that the subject should be viewed as an argument of the the verb in just the same way as the object. The subject predicate asymmetry of intransitive predicates too is deemed irrelevant, just one instance of a function-argument structure (§3, §9f.).

To express statements of generality, Frege introduces a generalizing operator, the now familiar universal quantifier. The big achievement in Frege's treatment of quantification lies in the fact that he combines it with explicit variable binding. The compositional system developed in the Begriffsschrift thus easily allows for statements containing infinitely many quantifiers, something that had not been achieved before (see van Eijck, 1991, 1985; Dummett, 1973). However, unconcerned with the syntactic structure of natural language, Frege's universal quantifier combines with a (possibly complex) one-place predicate, for instance a sentence with an abstraction over a variable (as in 1b and c), rather than with two terms, as in the previous Aristotelian treatment (as for instance in 1a, with a natural interpretation in terms of sets).[4]

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[4]Frege's notation in (1c), where $\underset{\smile}{\alpha}$ stands for a universal quantifier (expression of generality) binding α, and the splitting line for a conditional, is equivalent to the more standard notation in (1b). While Frege allowed quantification over properties as well as over individuals, in the Begriffsschrift he is not concerned with a compositional treatment of natural language. The use of predicate variables in the denotation of quantificational determiners of natural language would not become common place until the pioneering work of Lewis and Montague discussed below.

(1)   All men are mortal

   a. $[\forall]$ (men) (mortal)

         $\{x|x$ is a man $\} \subseteq \{x|x$ is mortal $\}$

   b. $[\forall x]\ \phi$ c. $\,_{\mathfrak{a}}\,\Gamma(\mathfrak{a})$

         $[\forall x](x$ is a man $\rightarrow x$ is mortal $)$ $\,_{\mathfrak{a}}\,\text{mortal}(\mathfrak{a})$

                                                              $\text{man}(\mathfrak{a})$

1.2.3   The onset of the linguistic study of quantification

In the 1970s, philosophers like David Lewis and Richard Montague were interested in combining the advances in the study of generative linguistics with formal logical frameworks to give a rigorous treatment of the semantics of expressions of natural language (Lewis, 1970; Montague, 1970a,b, 1973). Montague (1973), for instance, proposes a mechanism to translate expressions of English into an intensional logical language. To account for nominal quantificational expressions, Montague combines two of Frege's key insights, the requirement of a fully compositional system and the treatment of verbs as functions, with the syntactic observation that adnominal quantifiers combine with a noun phrase as well as another predicative argument. For Montague, adnominal quantifiers too are functions, namely ones that take two predicative arguments and bind variables in both. Similarly, in the categorical grammar used in Lewis' *General Semantics*, the English determiners *a* and *every* are treated as expressions that combine with a predicative expression (their nominal complement) to form expressions in need for a further predicative expression (the verbal predicate). While Montague's grammar aims to account for the surface structures of a fragment of English, Lewis already entertains the possibility that some of the surface properties of English may be derived by a transformational component and potentially inconsequential for the semantic system. Both Montague's and Lewis' systems treat adnominal quantifiers essentially

as relations between predicates. This perspective has been one of the cornerstones of what has developed as the predominant approach to adnominal quantifiers in the years to come, generalized quantifier theory.

1.2.4 Generalized quantifier theory

In mathematical logic, Mostowski (1957) instigates the systematic study of quantificational expressions that lie beyond the expressivity of first order predicate logic (FOPL).[5] Mostowski studies the consequences of enriching the logic with quantifiers that are not first-order expressible, and proposes a general classification system for quantifiers, under which the universal and existential fall out as just two cases in the space of possible "generalized" quantifiers. Mostowski shows the usefulness of this system, despite the cost of loosing of soundness and completeness of FOPL. Linguists, just like logicians, also realized the limitations of first-order quantification. Some natural language expressions, for instance quantifiers like *many*, *most*, or (potentially) comparative constructions like *as many . . . as . . .* , or *more . . . than . . .* , could not be expressed within these limits (e.g van Eijck, 1991). These expressions can, however, be treated as higher-order quantifiers, and denotations of this sort have consequently been proposed as possible denotations for quantificational expressions in natural language. The linguistic incarnation of GQT has since become one of the most popular approaches to the semantics, and part of the syntax, of quantificational expressions in natural language. It was hoped that within GQT a large array of problems would become approachable. Gamut (1991, vol. 2) discuss the goals of the generalized quantifier approach to natural language quantification as follows.

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[5]Frege's system in the *Begriffsschrift* already allowed for second-order variables and associated quantification over functions. Some later logical formalisms, however, were more restricted to address concerns of soundness and completeness.

> The theory has various objectives. Its aims are partly descriptive, and its nature is partly theoretical. The descriptive work involves a variety of topics, such as the internal semantic structure of terms, the distribution of negative polarity items, *there* insertion, and conjunction reduction. The more theoretical research focuses on restrictions on possible meanings of natural language terms, the expressive power of natural languages with regard to possible meanings, semantic universals, and so on. Key references are Barwise and Cooper (1981); van Benthem (1983, 1984, 1987); Keenan and Moss (1984); Keenan and Stavi (1986); Keenan (1987).   [Gamut, 1991, vol. 2]

In more current research on the empirical topics listed by Gamut, the framework of GQT has not always played a central role. However, GQT offers a framework that successfully captures a range of phenomena and has since become an often assumed standard.

The main class of quantifiers that have been studied from the viewpoint of GQT are adnominal quantifiers (also referred to as D-quantifiers). There has been a longstanding tradition to view these quantifiers as two-place predicates, which express a relation between two sets, as in (2a). Extensions of this view have often been called the "restricted quantification" view. Under the restricted quantification view, the first set constitutes the restrictor to the quantifier, that is, it supplies the set of entities that should be considered for quantification. The second set constitutes the nuclear scope of the quantifier, the set to which the restrictor is compared.[6] The asymmetric role of the restrictor and the nuclear scope that is implicit in the restricted quantification view seems to be well founded in the semantics of natural languages, most prominently witnessed by the apparently universal adherence of restricted quantifiers to a principle that Barwise and Cooper (1981) call *conservativity*.

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[6]Heim (1982) chooses the term nuclear scope to avoid terminological confusion with frameworks that use the term scope for the combined material of what is being called restrictor and nuclear scope here.

(2) $[\![_{\text{DP}} \text{DetQ NP}]\!] = \lambda Y. [Q\ (X)(Y)]$

> where *Q* stands for the quantifier denoted by DetQ, *X* for the denotation of its NP complement, and *Y* will be filled with the second predicate (for instance a VP).

(2) provides a uniform semantic type for all quantificational DPs, whether they are first-order expressible (such as universal or existential quantification) or of a higher type (such as the quantifier corresponding to the proportional reading of *most*). Adnominal quantifiers treated in this way introduce a natural structure on the sentence – the quantifier acts as a determiner for the nominal phrase, which in turn takes a predicate as its argument. Both the nominal phrase as well as the sentence modulo abstraction over the QP argument express one-place predicate type meanings, which, under the restricted quantification view, are said to constitute, on a semantic level of representation, the arguments of the quantifier. In frameworks that postulate a tight match between syntactic category and semantic type, the type of a generalized quantifier can easily be postulated for expressions that are said to refer as well, e.g. by shifting a referential expression via a type-shifting operation like (3b) to a functional expression of a generalized quantifier type.

(3)   a. $[\![\text{John}]\!] = j$

   b.   If $[\![\alpha]\!]$ is in D_e, then $\lambda P.P([\![\alpha]\!])$ is a further denotation for α.

   c. $[\![\text{John}]\!] = \lambda P.P(j)$

Thus a large part of research on natural language quantifiers in general has focused on developing a semantics for an assumedly uniform class of expressions, corresponding to $\langle 1, 1 \rangle$ quantifiers in Mostowski's classification, quantifiers that take two one-place predicates as their arguments.

CHAPTER 2

QUANTIFIER SCOPE AND TELESCOPING

Quantificational expressions are among a class of expressions of natural (and artificial) languages can affect the interpretation of dependent expressions. They can, for instance, give rise to co-varying interpretations of dependent pronominal expressions. When (4) below is uttered in a context with three cats, say Teddy, Francesca and Malloy, the interpretation of the DP *its food* varies depending on the cat under consideration. For (4) to be true, all of the statements in (5a-c) have to be true.

(4)　　a.　Every cat ate its food.

(5)　　a.　Teddy ate Teddy's food.

　　　　b.　Francesca ate Francesca's food.

　　　　c.　Malloy ate Malloy's food.

　Thus, in (4), the DP *its food* does not refer to any one particular portion of food. The pronoun *it* certainly does not refer to a particular cat, and if we understood *it* as referring to the same semantic object that its antecedent, *every cat*, denotes we would expect an interpretation equivalent to what is expressed by (6) below, at odds with our intuitions about the meaning of (4).[1]

(6)　　Every cat ate every cat's food.

　Which expressions of natural languages can form these and other kinds of interpretational dependencies, and what the underlying mechanisms and con-

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[1]For arguments that pronouns in general cannot refer to the kind of semantic object that a full quantified DP denotes (say a generalized quantifier) see Chierchia (1984) and Landman (2006).

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straints are is a matter of empirical research. It is, for instance, not the case that the linear order of two elements always determines the direction of the dependency. If scope in English were true to the surface order, (7a) below would express former president Bush's understanding that nobody agrees with the decisions he made ($\forall > \neg$), and (7b) would only have a nonsensical reading requiring a particular bone to be in multiple locations at the same time ($\exists > \forall$). Both of these interpretations are most certainly not the intended ones. Similarly, (7c) can describe a building with many open windows (possibly different ones every day), without making a claim about the permanent state of many particular windows (always $>$ many).

(7)   a.   I understand everybody in this country doesn't agree with the decisions I've made.[2]

        b.   Guinevere has a bone in every corner of the house.   [Rodman, 1976]

        c.   Many windows are always open in this building.

[Mayr and Spector, 2010]

While the above examples show that some independence between the surface form of a sentence and the scopal dependencies of the expressions contained therein is required, the surface form still severely restricts the available interpretations. (8a) below, for instance, cannot be interpreted as in (8b).

(8)   a.   If Guinevere had a bone in every corner of the house, the house would be really messy.

        b.   For every corner of the house: If Guinevere had a bone in that corner, the house would be really messy. (That is, if Guinevere had a bone in any corner of the house, the house would be really messy.)

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[2]From George W. Bush and John Kerry's election debate on September 30, 2004.

Similar observations hold for the dependency between pronominal expressions and their binding operators, as illustrated for instance by the examples in (9) from Culicover and Jackendoff (1997). While in (9a), the quantificational DP *every senator* can introduce a co-varying interpretation of the pronoun *he*, no such dependency can be created in (9b).

(9)   a.   Every senator at the party thought that he would have no trouble getting elected.

        b.   *Every senator was at the party and he was worrying about getting elected.   [Culicover and Jackendoff, 1997, p. 204]

The question then arises as to how the data points above should be generalized. One proposal with considerable empirical support, which captures the data in (8) and (9) above (among many others), states that the scope of quantificational DPs is sentence bound. Below is a version of this generalization from Heim (1982).

> "The basic fact seems to be that quantifier scope is clause bound, i.e., that the maximal scope for a quantifier is the smallest S which contains it in surface structure. The only exception to this are quantifiers in the complement clauses of certain propositional-attitude verbs, which can apparently take wider scope than the matrix verb. [...] I am going to disregard this qualification. Otherwise, i.e. in relative clauses, if-clauses, adverbial clauses, etc. the clause-boundedness of quantifiers is pretty much exceptionless. [...] Given our system of construal rules, the constraint can be implemented as a condition on the applicability of NP-Prefixing, which I formulate tentatively as follows: *Do not adjoin an NP any higher than to the lowest S in which it originates.*"
> [Heim's *Scope Constraint*, p. 204]

As Heim mentions, the constraint is well motivated and captures a large number of data. Examples like (10a) below may seem like potential counterexamples to the claim, as the quantifier seems to scope over the embedding verb. But even in these cases, the quantifier's scope is still limited to the next higher clause (e.g. 10b).

(10)   a.   Mary has permitted us to invite everybody.   [Heim, 1982, p. 204]

b. *If Mary has permitted us to invite [every boy]$_i$, he$_i$ will come.

In light of the strong support for Heim's Scope Constraint, it is rather surprising that there is a class of counterexamples that seems to defy it in some fundamental way. (11) to (13) below are examples from the literature.[3]

(11)   [Each student]$_i$ in the syntax class was accused of cheating on the exam and he$_i$ was reprimanded by the Dean.

<div align="right">[Fodor and Sag, 1982, p. 393, fn. 6]</div>

(12)   [Every rice-grower]$_i$ in Korea owns [a wooden cart]$_j$. He$_i$ uses it$_j$ to harvest the crops.   [Sells, 1985]

(13)   [Each degree candidate]$_i$ walked to the stage. He$_i$ took his diploma from the Dean and returned to his$_i$ seat.   [Partee, in Roberts, 1987, p. 38]

In (11), the quantificational DP does seem to introduce a co-varying interpretation of the pronoun *he* in a coordinated sentence. Similarly, the DPs *every rice-grower* in (12) and *every degree candidate* in (13) seem to induce co-varying interpretations of pronouns in subsequent sentences. Furthermore, the indefinite DP *a wooden cart* in (12) would usually not be available for pronominal reference outside the scope of the quantifier it co-varies with (Karttunen, 1976), but is picked up again by the pronoun *it* in the following sentence. Examples like the ones above are often discussed under the label "telescoping", which is attributed to Barbara Partee in Craige Roberts' dissertation (Roberts, 1987). The hallmark characteristic of telescoping is the occurrence of a quantifier in one sentences that appears to bind a pronoun in a subsequent sentence, as it is the case in the examples (11) through

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[3]In order to keep with these examples without adding further complexities, I will assume, for the purposes of this chapter, that all discourse participants believe that in the relevant examples all syntax students, rice-growers and degree candidates in the context are male.

(13) above.[4] Telescoping appears to be a relatively fragile phenomenon, natural examples do not seem to be particularly frequent. However, Carminati et al. (2002) find in a reading time study that telescoping examples don't seem to impose any considerable processing load and seem to be available with equal ease with both *each* and *every*. Moreover, most native speakers find the examples above quite acceptable, and, importantly, perceive clear contrasts with less acceptable though structurally identical examples (to be discussed below; compare also (9)). This, I think, prevents us from "explaining the data away", maybe by delegating them to some general cognitive mechanism that extracts as much information as possible from structures that the grammar is not equipped to process. The data above appear to be a clear exception to the scope constraint.

2.1 Main questions

There are two main questions that are posed by the discovery of telescoping examples like the ones in (11) through (13) above. One question concerns the distribution of these examples, that is the contrast between discourses where telescoping is made available by the grammar, and ones where it isn't. The other question has to do with the theoretical implications for the scope constraint.

2.1.1 Constraints on the distribution of telescoping

Many of the authors mentioned above noted that the cited examples have very close, but unacceptable, counterparts. Sells compares his example in (12), repeated in (14a) below, with the less acceptable variant in (14b), similarly Fodor and Sag note the clear contrast between (11), repeated as (15a), and (15b).[5]

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[4]Some authors refer to this phenomenon as *quantificational subordination*. I will stick to the term *telescoping* as it does not imply any commitment as to whether the pronoun is structurally subordinate to the quantifier.

[5]In all examples in which DPs are not annotated with indices, the judgments are given for an interpretation where the pronoun in the second sentence is construed as co-varying with the

(14)   a.   Every rice-grower in Korea owns a wooden cart. He uses it to harvest the crops.

       b.   Every rice-grower in Korea owns a wooden cart. *He also owns a large drying shed.

(15)   a.   Each student in the syntax class was accused of cheating on the exam and he was reprimanded by the dean.

       b.   *Each student in the syntax class was accused of cheating on the exam and he has a Ph.D. in astrophysics.

The contrasts above show that telescoping is not available just anywhere. What, then, are the constraints on telescoping, that is, what is behind the contrasts in (14) and (15)?

2.1.2   Theoretical implications

The second question concerns the implications for the validity of the scope constraint that are raised by the existence of telescoping. Is it possible to retain the scope constraint, or some similar constraint, or are we forced to abandon it and find different explanations for the restrictions that it accounted for? Put differently, should telescoping be viewed as an "exceptional" construction? If so, does telescoping invoke a separate mechanism that exempts it from the scope constraint, or is the underlying structure of the telescoping discourses such that they do not violate the it? Proposals that maintain the scope constraint can be found for instance in Roberts (1987, 1989), Poesio and Zucchi (1992), von Fintel (1998), and Keshet (2007). In this chapter, I will argue for an account that shares this property.

Alternatively, the existence of telescoping might be taken as evidence against the scope constraint, that is telescoping may be viewed as the general case, shifting

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quantificational DP in the first. In suitable contexts, alternative (grammatical) interpretations of the pronoun may be available.

the quest for an explanation to those cases where a quantificational dependency cannot be established. The most explicit proposal along these lines is made in Wang et al. (2006). Sometimes this discussion is cast as one contrasting dynamic and static systems of interpretation. In the early 1980s, Kamp and Heim developed so called dynamic systems of interpretation. Kamp and Heim's systems are characterized by their two main innovations. It is argued that sentences can influence the context (as *updates* that eliminate worlds from the context set or as *tests* that impose certain conditions on the worlds in the context set). Thus sentences can be characterized as dynamic, as they are seen as functions with *context change potential*, rather than as "static" set theoretic objects (e.g. chapter 3 of Heim, 1982). The other innovative feature of Heim and Kamp's proposals concerns the semantics of indefinite DPs. Breaking with the Russellian tradition of assigning to indefinite DPs a denotation that introduces existential quantification into the semantic representation, Heim and Kamp argue that existential quantification is an independently available mechanism, and that indefinite DPs merely introduce a (restricted) variable into the semantic representation that can then be bound by various operators, or be interpreted existentially (Kamp, 1981; chapter 2 of Heim, 1982. For further discussion of this aspect of Kamp and Heim's proposals see chapter 3). Among other things, this perspective provides an explanation as to why the apparent scope taking abilities of indefinites differ from the ones of "true" quantificational determiners (which, in contrast to indefinites, obey the scope constraint). In Heim and Kamp's work, those two features interact, but some subsequent authors have proposed to return to a system in which existential quantifiers are introduced by lexical items, albeit with different logical properties. In particular, in these systems, the existential quantifier is allowed to be "dynamic", in the sense that it can "extend" its scope and influence items that were not within its original scope domain (see e.g. Groenendijk and Stokhof, 1991). In principle

other quantifiers can then be defined along the same lines, i.e. with extendable scope. Some of these authors have argued that the existence of telescoping shows that this approach is on the right track, as telescoping examples appear to show that the existential quantifier is not special after all in its ability to extend its scope, but that other quantifiers, such as the universal, fit the pattern as well (see e.g. Dekker, 1999). Under this perspective, telescoping is expected, and we will have to explain why telescoping is not generally available across the board, or subject to more specific restrictions that the extended binding by an existential.

Among the initially mentioned, in a sense more conservative approaches that maintain that indefinite DPs are different from other quantificational DPs in that other quantificational DPs obey the scope constraint, three different perspectives on the problem emerge. In accounts like the ones proposed by Poesio and Zucchi (1992) and von Fintel (1998), the pronoun is interpreted as a variable that is bound by a separate operator in a position that does not violate the scope constraint. In Poesio and Zucchi's account, descriptive material is made available to a subsequent quantifier via a process of accommodation, as suggested in Roberts (1989). In the account proposed by Neale (1990), the pronoun is interpreted as a referential (numberless) e-type pronoun not in the scope of the initial operator. In the syntactic subordination account proposed in Keshet (2007), the pronoun is brought under the scope of the initial quantifier in a non-dynamic system by a syntactic operation that precedes any semantic interpretation. The suggestion made in Roberts (1987) could be interpreted in this way as well.

The account proposed at the end of this chapter is a modification of Poesio and Zucchi's and von Fintel's approach.

2.2   The restrictor accommodation approach

Poesio and Zucchi, in their 1992 paper on telescoping, present a detailed account of telescoping based on Craig Roberts' suggestion that her restrictor accommodation approach to modal subordination could be extended to telescoping. Before discussing Poesio and Zucchi's account, I will introduce some background on modal subordination.

2.2.1   Modal subordination

Karttunen (1976) presented a number of interesting observation about the circumstances under which an indefinite noun phrase is available as an antecedent for subsequent pronominal reference, or, in Karttunen's terms, about the *lifespan* of the discourse referent introduced by the indefinite noun phrase. Karttunen observed that, in general, whenever a discourse referent is introduced in the scope of an operator that it depends on, its lifespan coincides with the scope of that operator. However, he also observed that there are cases in which a subsequent operator seems to be able to extend the lifespan of that discourse referent. The contrast in (16a) and (16b) below illustrates Karttunen's observation.

(16)   a.   You must write a letter to your parents. *They *are* expecting it/the letter.[6]

      b.   You must write a letter to your parents. It *has to* be sent by airmail. The letter *must* get there by tomorrow.

Karttunen observed that indefinites in the scope of operators, such as the modal *must* above, introduce what he called a short-term discourse referent that generally "ceases to exist" outside the scope of the operator it depends on, as illustrated by

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[6]The pronoun *it* here is intended to refer back to the discourse referent introduced by *a letter*, rather than refer to the more complex object denoted by *you write a letter to your parents*.

the example in (16a). However, Karttunen takes (16b) to show that "at least in case of modals (and the future will), it is possible to continue discussing a thing that actually does not yet exist, provided that the discourse continues in the same mode."

Roberts proposes an account for cases like Karttunen's (16) above, discussed under the term modal subordination.[7] Roberts' account relies on the insight that modals and similar operators often are restricted, and the observation that not all restrictions need to be overtly expressed, but are commonly understood based on the context (see e.g. Lewis, 1975; Kratzer, 1977 and subsequent work). Roberts then proposes that in cases of modal subordination the proposition embedded under the modal of the first sentence (or some part thereof) is accommodated into the restrictor of the second modal. The picture in (18) below illustrates the process for Roberts' example in (17).

(17)   A wolf might come in.

    a.   *It eats you first.

    b.   It would eat you first.

(18)   modal operator   restrictor   nuclear scope

    (POSSIBLE)   [...   ]   [a wolf comes in]

    (NECESSARY)   [?   ]   [it$_?$ eats you first]

                         ||

          restrictor accommodation

                         ⇓

    (NECESSARY)   [a wolf$_i$ comes in]   [it$_i$ eats you first]
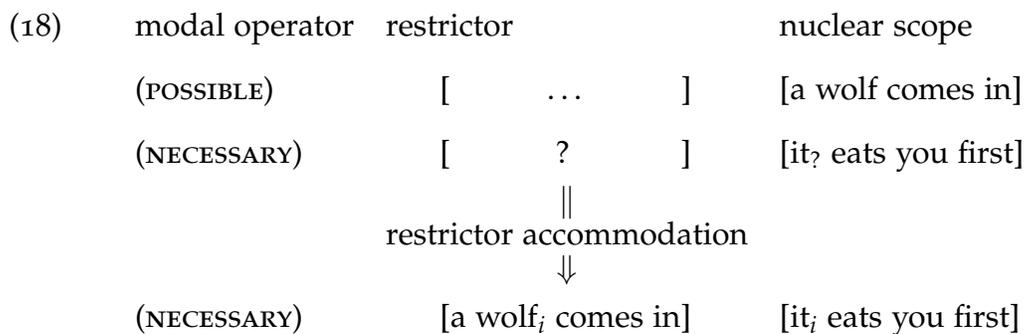
Roberts notes that similar examples exist outside of modal contexts (e.g. the examples from Karttunen, 1976 and Sells, 1985 discussed above), and suggests that her account may generalize to these non-modal cases. In this context, she also

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[7]Despite the term, Roberts argues against a subordination account in a structural sense (in her terminology an insertion account). I will present her arguments later.

discusses the degree-candidate example in (13), and proposes that it, and other telescoping examples like it, may, in a way to be made precise, be related to the generalized subordination mechanism as well.

2.2.2   Telescoping as restrictor accommodation

Poesio and Zucchi (1992) take up Roberts' suggestion and show how the restrictor accommodation approach can be extended to telescoping cases. Poesio and Zucchi distinguish two sub-cases in their paper: instances where some expression that introduces a tripartite structure is present in the syntactic representation of the "telescoped" clause (including unpronounced operators like a generic quantifier), as for instance in (19), and cases like the telescoping examples in (11) through (13), where no such expression may be present, and a tripartite structure with a restrictor has to be inserted into the semantic representation in some different way.

(19)   Every story pleases these children. If it is about animals, they are excited, if it is about witches, they are enchanted, and if it is about humans, they never want me to stop.   [attributed to Belvadi, 1989]

In examples like (19) above, Poesio and Zucchi assume that the *if*-clause signals the presence of an operator that introduces a tripartite structure (see e.g. Kratzer, 1981, 1986).   As in Roberts' account, the restrictor then gets augmented with material from the preceding sentence, crucially containing the descriptive material associated with the quantified DP.[8]

In many cases of telescoping it is less obvious whether there is sufficient syntactic justification (such as *if* clauses or tenses associated with genericity) to introduce a tripartite structure. Some of our initial examples, e.g. the rather

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[8]For a discussion of pragmatic and structural constraints on the accommodation process see section 4 of Poesio and Zucchi's paper.

episodic degree candidate example in (13), repeated in (20) below, may fall into this category.

(20)   [Each degree candidate]$_i$ walked to the stage. He$_i$ took his diploma from the Dean and returned to his$_i$ seat.

For these cases, Poesio and Zucchi assume that a special restrictor creation mechanism that is triggered when the context provides clear cues that the sentence is a step in a salient script.

> "A context c may link S to a restrictor $[\alpha]$ only if $[\alpha] \Rightarrow S$ is a step of a script salient in c."   [Poesio and Zucchi, 1992, p. 350]

To provide further evidence for their salient script approach, Poesio and Zucchi observe, I believe rightly, that the example (21) below from Heim (1982) becomes marginally acceptable as part of a larger episode, such as (22).

(21)   [Every dog]$_i$ came in. *It$_i$ lay down under the table.

(22)   I went to the circus last night. They had a number involving dogs that went like this: The circus performers put a table on some supports. Then, every dog came in. It lay down under the table, stood on its back paws, and lifted the table with its front paws.

At the end of this chapter I will present an account of telescoping without overt tripartite introducing operators that is much in the spirit of Poesio and Zucchi's. In its implementation, my account differs in that I propose that quantification in telescoping is over situations and not individuals, and treat the telescoped pronoun as an e-type pronoun (following the NP deletion proposal in Elbourne, 2005). Conceptually, I believe that telescoped sentences without an overt tripartite inducing operator can be linked more closely to those with an overt operator, via an unpronounced generic operator, treated here as a restricted quantifier over

situations. This is eliminating the need for a separate category of salient script knowledge. I believe that this instead allows for an explanation of the distribution of telescoping linked to a requirement to express non-accidental generalizations, which I will argue for starting in section 2.5.

2.3   Arguments against competing proposals

Poesio and Zucchi discuss two classes of competing accounts, dynamic accounts (e.g. Groenendijk and Stokhof, 1990) and e-type accounts (e.g. Neale, 1990).[9] Below I will present and extend their arguments against these two classes of accounts.

2.3.1   Telescoping is not true subordination

Poesio and Zucchi present two arguments against accounts involving quantification with dynamically extendible scope. The first one, from quantificational independence, extends to all true subordination accounts, including approaches that bring the telescoped pronoun under the scope of the initial quantifier by a syntactic, rather than a semantic process, as proposed in Keshet (2007). The second argument, from monotonicity properties of the discourse, applies to accounts that treat sentences as having context update potential and aim to adhere to Groenendijk and Stokhof's monotonicity constraints. Dekker (1999) showed that this argument may be overcome depending on the semantic representation assigned to sentences containing *no*.

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[9]As mentioned above, the relevant feature associated with the of the label "dynamic" here is that these accounts contain operators that can extend their scope so as to influence material not previously in their scope, rather than the view that sentences are viewed as probing and changing the context.

Quantificational independence

The argument from quantificational independence is an extension of an argument found in Roberts (1987, p. 21ff.) that focusses on the quantificational independence of the second clause. Roberts argues that examples like (17), repeated in (23) below, show that an account that extends the scope of the initial operator over the subsequent pronoun derives incorrect truth conditions.

(23)   A wolf might come in. It would eat your first.

   a.   It is possible that a wolf comes in and eats you first.

   b.   It is possible that a wolf comes in. If a wolf came in, it would *certainly* eat you first.

Roberts argues that an account that extends the scope of the first operator to include the propositional content of *it eats you first* predicts a reading that can be paraphrased as in (23a) above, at odds with our natural understanding of the sentence, which could be paraphrased as in (23b).

Poesio and Zucchi point out that we need to consider the possibility that the second modal might still be interpreted (rather than say merely being used to extend the scope of the first), but that it is interpreted subordinate to, that is, in the scope of the first one. They go on to show that even if the second modal were to be taken into account and brought under the scope of the first one, the predicted truth conditions would be incorrect, since both modals seem to allow for different modal bases, as illustrated by their example in (24) below.

(24)   A marmot may be inside. It would bite your hand.

   a.   It may be the case that a marmot is inside and would bite your hand.

   b.   In view of what I believe, a marmot is inside. It would bite your hand.

   c.   In view of what I believe, a marmot is inside and would bite your hand.

Poesio and Zucchi argue that there is a contrast between an interpretation where both modals are interpreted with respect to the same modal base, as brought out in (24c), and one where they may not, as brought out in the paraphrase in (24b). Our intuitions seem to align the original example with the paraphrase in (24b).

In the spirit of Roberts, Poesio and Zucchi present this argument as an indirect argument against subordination accounts to telescoping. The argument relies on the assumption that telescoping and modal subordination share a mechanism. This leaves open the possibility to evade the argument by claiming that, while dynamic or insertion accounts to modal subordination may not be feasible, such accounts may still be on the right track for telescoping. I believe that it is a valid question whether the perceived parallelism between modal subordination and telescoping in fact necessitates a unified account, however I think that it is possible to construct parallel examples that illustrate quantificational independence for telescoping as well.

Of course the difficulty with extending Roberts' and Poesio and Zucchi's argument to telescoping is that all instances of telescoping we have seen so far involve overt universal quantifiers in the initial sentence, and are perceived as involving universal quantificational force in the subsequent sentence – a situation that does not allow us to distinguish the quantificational forces of the two sentences, and hence makes it impossible to tell whether one or two operators are involved. Poesio and Zucchi cite one example that may help to make an argument of this sort, the example in (25) below, a variation of Belvadi's example in (19).

(25) No story pleases these children. If it is about animals they yawn, if it is about witches they frown. If it is about people, they fall asleep.

In (25), it is a bit trickier to see intuitively how to extend the scope of the DP *no story*. Intuitively the quantificational force in the second sentence seems universal.

However, it may of course be the case that the correct representation for the first sentence in (25) should contain a universal quantifier and a negated property, as in the representation in (26).

(26) $\forall x$ [story x] [$\neg$ please(these children,x)]

An argument along these lines is also made in Dekker (1999). Dekker discusses the example in (27) below as follows: "[T]he first sentence of example [(27)] can be seen to be fully equivalent with the sentence *Every computer does not leave the building with a Zonnebloem-chip*. The whole example is taken to mean that every computer has all of its Zonnebloem-chips removed before it leaves the building, apparently, the most obvious reading of the example."

(27)   No computer leaves this building with a Zonnebloem-chip. It is removed beforehand.

Given the nature of the examples above, what would ideally be needed is an operator in the initial sentence that has less than universal force. Most fitting operators in English however involve plural agreement, e.g. *most* in (28), which is problematic for the argument at hand, since it is reasonable to assume that the plural pronoun *they* in the second clause could simply refer to the group introduced by the *most* DP (possibly involving a further distributivity operator in the second clause, depending on the predicate).

(28)   Most degree candidates walked up to the stage. They received their diplomas from the Dean and returned to their seats.

The only quantifier that seems to fit our needs is the slightly archaic *many a* construction. However when we construct telescoping examples involving *many a*, the point Roberts, Poesio and Zucchi made seems to hold up – the non-universal force of *many a* does not extend to the telescoped clause.

(29)   Many a student walked up to the stage. He received his diploma from the
        Dean and returned to his seat.

(29) above seems to describe a situation in which many, but possibly not all students
walked up to the stage. However it seems to require that, at least generally, all
students that walked to the stage received diplomas and re-seated themselves, i.e
the truth conditions of (29) above crucially differ from those of (30) below.

(30)   Many students walked up to the stage, received their diploma from the
        Dean and returned to their seats.

A similar argument can be made with universal quantifiers modified by *almost*,
e.g. (31) below.

(31)   Almost every degree candidate walked up to the stage. He received his
        diploma from the Dean and returned to his seat.

(31) above requires nearly every degree candidate to walk to the stage. However,
to me, it seems to require that all those degree candidates that walked to the
stage received their diploma from the Dean and returned to their seats.[10] The
"exclusions" admitted by *almost* can't seem to come from a failure to satisfy the
property expressed in the second clause. This disparity is unexpected under an
insertion account.

I believe that the argument from quantificational independence is the strongest
argument against subordination-type accounts. It extends to syntactic accounts
that bring both sentences within the scope of the same operator, e.g. as proposed
by Keshet (2007). Keshet proposes that the two seemingly independent sentences

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[10]Later on I will argue that the second sentence may in fact admit some exceptions. However, I
believe that these have to be justified exceptions to the pattern in some way. Somebody might faint,
or break a leg. The exceptions admitted by the presence of the modifier *almost* on the other hand
do not need to be justified, all that is said is that the pattern holds for the vast majority of degree
candidates.

actually form a conjoined structure, and that in certain cases the quantified DP can be moved above the conjoined structure.

However, Keshet also points to an interesting problem for accounts that propose independent quantification. While in the case of conjoined clauses the same truth conditions are obtained independent of the scopal ordering of conjunction and universal quantification, the existential nature of disjunction leads to a truth conditional difference. Keshet constructs examples to show that this supports an account that brings both disjuncts under the scope of the same operator.

(32)   Each degree candidate accepted his diploma or (if he was sick) his mother

did.   [Keshet, 2007, p. 324]

   a.   For each degree candidate x, either x accepted x's diploma or x's
        mother accepted x's diploma.

   b.   Either, for each degree candidate x, x accepted x's diploma, or, for
        each degree candidate x, x's mother accepted x's diploma.

(33a) above is not equivalent to (33b). (33a) is compatible with a situation in which each degree candidate might do one or the other, while (33b) requires to all degree candidates to behave the same. (33b) is clearly at odds with our intuitive understanding of the example.

I don't have a good reply to Keshet's example. It is not immediately clear to me that one would have to accept the premise that cases with two disjoined clauses should be treated the same, though it seems preferable to have an account that would straightforwardly account for both structures. However, I also think that the case is not hopeless for an account with independent quantification. What seems worth investigating to me is why including the restrictive conditional "if he was sick" in (32) seems so natural. Maybe the correct representation for cases like this always has to include some restriction of this sort, and we may have a

representation along the following lines: "For each (non-sick) degree candidate x, x accepted x's diploma, or, for each (sick) degree candidate x, x's mother accepted x's diploma." Now the two disjuncts are no longer incompatible. Clearly, some more would have to be said about how we arrive at the actual understanding of the sentence, and what kind of pragmatic reasoning would get us there.

(Non-)monotonicity

Secondly, Poesio and Zucchi argue that telescoping cases involving the quantifier 'no' would be problematic for the monotonicity constraint proposed by Groenendijk and Stokhof.

(33)   a. $\downarrow [\Phi; \Psi] \models \downarrow \Phi$

        b.   No step in a discourse can constitute a weakening of the truth conditional content of the discourse up to that point.

Translating *no* as 'for every ... not' allows the dynamic universal (above negation) to bind pronouns in subsequent sentences, however indefinites below the scope of negation would be trapped, a prediction that conflicts with examples like (34). If the indefinite below the negation is allowed to bind outside the scope of negation, incorrect truth conditions are derived, as paraphrased in (35).

(34)   No man can be friends with a woman he finds attractive. He always wants to have sex with her.

                          [from "When Harry met Sally", in Poesio & Zucchi]

(35)   if x is a man, then it is not the case that (there is a y such that y is a woman that x likes and y can be friends with x and x always wants to have sex with y).

However, see Dekker (1999, and also 1990) for a solution to this problem. Dekker proposes a mechanism he calls "periscoping" that allows the discourse referent associated with a DP (standardly a name, but the mechanism can apply to discourse referents introduces by other DPs as well) to escape the scope of the local operator it is introduced under. Together these two assumptions alleviate Poesio and Zucchi's criticism.

2.3.2 Arguments against the e-type approach

Poesio and Zucchi also argue against a particular version of an approach to telescoping treating the telescoped pronoun as an e-type pronoun.

E-type pronouns

The term e-type pronoun was introduced by Gareth Evans (1977, 1980) in discussing sentences like (36a) and (36b) below.

(36) a. John owns some sheep and Harry vaccinates them in the spring.

   b. Few congressmen admire Kennedy, and they are very junior.

Evans observed that the pronouns in these sentences cannot be interpreted as bound by their antecedent, as this would result in incorrect truth conditions along the lines of (37a) or (37b) below.

(37) a. [Few x] [congressman(x) & admire(x,Kennedy)] [very young(x)]

   b. [Few x] [congressman(x)] [admire(x,Kennedy) & very young(x)]

Both (37a) and (37b) are compatible with a scenario in which many old congressmen admire Kennedy, at odds with our understanding on (36b). Similarly, treating *them* in (36a) as bound by *some sheep* results in truth conditions that are too weak,

since they would be compatible with John owning sheep not vaccinated by Harry. (36a), however, requires that Harry vaccinates all the sheep John owns.

Evans proposes that a relevant cue to understanding these pronouns comes from their paraphrases as restricted definite DPs as in (38a) and (38b) below.

(38)   a.   John owns some sheep. Harry vaccinated the sheep that John owns in the spring.

          b.   Few congressmen admire Kennedy. The congressmen that admire Kennedy are very young.

Evans claims that the pronouns in the examples above are referential, though not in the most standard way. According to Evans, "it looks as though the role of the pronoun in these sentences is that of referring to the object(s), if any, which *verify* the antecedent quantifier-containing clause" (Evans, 1980, p. 340). Different implementations of Evans' insight have been proposed, and I will return to some of them in a later section.

E-type pronouns and telescoping

The insight that some pronouns seem to have an interpretation similar to definite DPs with additional restrictive material has been very attractive as an account for pronouns that appear bound but are in structural positions that are typically incompatible with establishing a binding relation. There is, however, one feature that any account that attempts to use e-type pronouns in those circumstance has to address. Because of their treatment as definite DPs, e-type pronouns are typically assumed to inherit some form of maximality or uniqueness. In any context where more than one entity satisfies the description of the antecedent, but only one of those entities seems to be picked out by the pronoun, this is problematic. Examples of just this kind, e.g. the sage-plant example in (39) below,

have initially persuaded Irene Heim that the e-type strategy is not a viable strategy to account for donkey-anaphora.

(39)   Everybody who bought a sage plant here bought eight others along with it.   [Heim, 1982, p. 89]

Telescoping examples clearly fall into this class as well, since typically more than one entity will satisfy the description of the universally quantified NP, while the agreement of the telescoped pronoun seems to suggest a singular interpretation. To overcome these difficulties, Neale proposes a "numberless" determiner *whe*, defined as in (40).

(40)   '[whe x: F x](G x)' is true iff $|\mathbf{F} - \mathbf{G}| = 0$ and $|\mathbf{F}| \geq 1$

Poesio and Zucchi conclude that an account that includes a *whe* denotation for the anaphoric pronouns has a chance of getting the facts right, but will have to involve additional constraints to rule out cases in which telescoping is not acceptable. This is in fact what Neale proposes.

> In light of the anaphoric difficulties [...] some people have argued that an adequate semantic theory must prevent pronouns from being interpreted as anaphoric on 'every' phrases that do not c-command them. In my opinion, this is a mistake.   [Neale, 1990, p. 232]

A challenge for the numberless e-type account may arise from the temporal ordering of the facts described. von Fintel (1998, p. 212ff.) discusses the example in (41) below, due to Stephen Barker.

(41)   Every girl bought a donkey first and then, if she was happy, she bought a llama.

Baker observed two problems with (41).

It might be replied that [(41)] is really a conjunction of general indicatives as in (i): 'Every girl bought a donkey first and then, if she was happy, every girl bought a llama'. And so the *if*-clause modifies a second implicit quantifier. But this cannot be right. First, it arbitrarily treats the last pronoun *she* in [(41)] as a quantifier. Second, (i) does not do justice to the role of *then*. For (i) has a reading, which [(41)] has not, that after every girl bought a donkey there was an event in which every girl who was happy bought a llama – this is made clearer if we consider (i) in the form 'Every girl bought a donkey and then every girl if she was happy bought a llama'. [Barker, 1997, p. 204]

While Neale's account is not affected by the first objection, I believe the second may apply. The ordering of events needs to be by individual – each girl's llama purchasing event depends on that particular girl's donkey purchasing event. Similarly, the conditionalization is by individual. A naive Neale style account seems to predict, contrary to those intuitions, that in the second sentence of the conjunction in (41), there would be two independent instances of *she* ($= \lambda G.$ whe [girl who bought a donkey] [G]), one in the conditional, and one in the main clause, giving rise to a meaning roughly similar to (42) (focussing, for simplicity, only on the contribution of *she* with respect to the conditional).

(42)   always $[|\text{gbd} - \text{h}| = 0 \wedge |\text{gbd}| \geq 1]$ $[|\text{gbd} - \text{bl}| = 0 \wedge |\text{gbd}| \geq 1]$

(where gbd stands in for the meaning of *girl who bought a donkey*, h for the meaning of *happy* and bl for *bought a llama*)

Our intuitions, however, suggest that (42) above is too weak (it only imposes requirements on cases where all donkey buying girls are unhappy), and align more with a paraphrase like (43) below, where a common operator binds a variable corresponding to *she* in the conditional and to *she* in main clause.

(43)   always$_x$ $[\text{gbd}(x) \wedge \text{h}(x)]$ $[\text{bl}(x)]$

Neale's numberless determiner approach is not the only proposal made to solve the problem posed by the uniqueness/maximality presupposition for e-type

accounts. The exploration of situation semantics, a class of semantic systems that interpret sentences with respect to partial information states, has made it possible to construct a successful e-type account for these pronouns. This argument has been made for instance in Heim (1990)'s revision of the conclusions drawn about the sage plant example in Heim (1982). In her 1990 paper, Heim argues that the advent of situation semantics makes it possible to demand that the uniqueness of e-type pronouns has to be satisfied only with respect to a situation (where situations are viewed as parts of worlds, see e.g. Kratzer, 1989, 2007). More recently, Elbourne (2005) has extended Heim's account. Elbourne proposed that e-type pronouns are simply particular pronunciations of definite determiners that arise when their argument NPs have been elided, as illustrated in (44a). Under the Heim/Elbourne proposal, *man* and *donkey* in (44) can be interpreted with respect to a (small, i.e. containing only the material minimally needed) situation, which permits to make a later reference to the unique man and donkey contained in those respective situations (as schematically illustrated in 44b).

(44)   Every man who owns a donkey beats it.

    a.   Every man who own a donkey beats it(=the) ~~donkey~~.

    b.   a man in s ... a donkey in s' ... the (unique) man in s beats the (unique) donkey in s' in s''

This is the proposal I will follow in the account to be developed below.

2.4   Shortcomings of the restrictor accommodation proposal

In the upcoming two sections I hope to add further evidence for a modified version of Poesio and Zucchi's proposal. I will propose that the telescoped pronouns are

e-type pronouns, following the Heim/Elbourne account of e-type pronouns.[11] I will further assume that there is an unpronounced restricted adverbial quantifier, with a structure as proposed by Lewis (1975), that provides the quantificational force in the telescoped clause, and that this quantifier ranges over situations. I will try to relate the presence of this quantifier to generic quantification, and hope to add evidence that this is the crucial feature that distinguishes acceptable from unacceptable telescoping discourses. That is, I will claim that acceptable telescoped discourses necessarily express a generalizing statement. In particular, I will claim that in the absence of an overt quantificational element, like *usually* or *generally*, the language processor needs to rely on our ability to recognize generalizing statements to license insertion of a generic operator, which will allow for the apparent bound interpretation of the pronoun. I will present data from an acceptability judgment study that provide some evidence for this claim.

I hope that the requirement that telescoping is possible in generalizing contexts can subsume both Poesio and Zucchi's mention of telescoped examples involving generics, as well as their salient script approach. Poesio and Zucchi's discussion of cases involving the generic operator is relatively brief. They cite the example in (45) below and state that the bare noun "ostracism" indicates a generic interpretation.

(45) a. Every male Athenian citizen voted on ostracism. He wrote the name of the candidate on a piece of pottery.

      b. Every male Athenian citizen voted on the ostracism. ??He wrote the name of the candidate on a piece of pottery.

While the notion of scripts has received a considerable amount of attention

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[11]Elbourne points out an important distinction between his and other proposals and Evan's original one, concerning the referential status of e-type pronouns. Elbourne uses the term *d-type pronoun* to indicate the difference. While my proposal follows Elbourne's, I will ignore the terminological differentiation for the discussion at hand. In Elbourne's terminology, the proposal presented here relies on d-type pronouns.

in the psychological literature (Schank and Abelson, 1977, a.o.) and some areas of computational linguistics, they have not played a dominant role in current linguistic research. Some of the discussion in the psychological literature may answer the questions that are left unaddressed in Poesio and Zucchi's account, for instance whether discourse participants have preconceived notions of certain scripts, e.g. a common "dogs-in-circus" script, or, if not, whether scripts would have to be created on the fly and what the constraints on such a mechanism are. It is not clear to me whether there is an independently identifiable property of salient scripts that would allow us to investigate the strength of the correlation between scripts and telescoping. I hope that by attempting to bring all telescoping proposals under a single mechanism, some of these concerns can be alleviated, and further connections to some of the philosophical literature on generalizing statements may be explored.

Besides the conceptual reasons discussed above, there is also potential empirical evidence against the salient script approach. Intuitively, a crucial property of scripts seems to be that certain steps are executed in a constant, predictable order. While Poesio and Zucchi don't explicitly include ordering in their semantic representation, they acknowledge that "the steps of the script should be ordered, of course, but we want to keep the representation as simple as possible." The importance of such an ordering has been questioned by Carminati et al. (2002). In a reading time study of sentences like (46) below that was designed to confirm this prediction, Carminati and colleagues present stereotypical and deviant orderings to participants and, surprisingly, find no evidence that deviation from the stereotypical ordering of events has an effect on subjects reading times.

(46)   a.   Each executive / John Frederick went home. He broiled a steak. He
                ate dinner. Then he watched television.

b. Each executive / John Frederick went home. He ate dinner. He broiled a steak. Then he watched television.

While Carminati et al do not include a statistical analysis that would allow us to quantify how much trust can be placed in this negative result, the study does find response time differences with respect to a number of other factors. More generally, and possibly more devastating for the scripts approach, Carminati and colleagues point out that many examples of telescoping do not have the episodic structure and associated temporal progression that one would expect given a notion of scripts.

In the next sections I will address what I think a commonality that underlies many of the previous remarks about telescoping may be (though there is no guarantee, of course, that the authors would agree to this reinterpretation). I will then provide some data that I hope can be taken as evidence for this claim, and discuss some background assumptions. Finally, I will try to outline an account that incorporates these intuitions.

2.5 Telescoping requires non-accidental generalizations

I believe that, like many previous discussions of telescoping, Poesio and Zucchi's script approach seems designed to capture the intuition that there is some predictable regularity expressed by all examples of telescoping, for instance a certain course of events that is going to take place. Each "telescoped" instance is understood to follow that course of events. This view, I believe, is also encapsulated in the original term "telescoping". The term, according to Roberts, is supposed to express a sense of zooming in to "examine a particular instance" (presumably one assumed to be representative), that is, Roberts seems to view the examined case as generalizable.

Another early discussion of telescoping can be found in Peter Sells' 1985 article "Restrictive and Non-Restrictive Modification". Sells is interested in non-restrictive relative clauses, which, he argues, do not always have to be referential as is commonly assumed based on the ungrammaticality of examples like (47).

(47)   *Willy has been to every continent, which is on Earth.

Sells in contrast presents examples like (48) and (49) to show that indefinites in the scope of a universal quantifier, as well as universally quantified NPs can serve as heads for non-restrictive relative clauses.

(48)   Every new student is assigned a tutor, who is responsible for the student's well being in college.

(49)   A tutor will register each student, who is then responsible for getting his paper to the Dean's office on time.   [attributed to Janet Fodor]

In this context, Sells mentions Emonds' (1979) 'Main Clause Hypothesis' for non-restrictive relatives, according to which non-restrictive relative clauses are related via a transformation to a conjunction of the unmodified clause and the relative clause at the root. Sells notes that observations similar to the ones made in (48) and (49) above can be made with independent clauses as well, and with similar contrasts, as his examples in (50) show.

(50)   a.   Every rice-grower in Korea owns a wooden cart. He uses it to harvest the crops.
         b.   Every rice-grower in Korea owns a wooden cart. *He also owns a large drying shed.

While the intuitions about Sells' examples in (50) do not seem to be particularly strong, some speakers seem to perceive a decrease of acceptability related to the

inclusion of the word *also* in (50b). For these speakers, *also* seems to express a certain amount of accidentality or non-connectedness between the two statements, or rather, to be incompatible with the idea that the latter would, in some sense, follow from the former.

The notion of non-accidental, or law-like generalizations is relevant for a number of different constructions, foremost for counterfactual conditionals. I will not be able to say which generalizations should count as non-accidental or law-like, or how we recognize those, nor will I attempt to summarize all proposals made to this effect. However, that we can recognize such generalizations can be seen by our ability to recognize which generalizations support counterfactual reasoning. Nelson Goodman, famously, illustrates the contrast between a non-accidental or law-like generalization, with its capacity to license counterfactual reasoning, and a merely accidentally true generalization, which does not seem to license the same kind of inference.[12]

> Not every true general principle is capable of sustaining a counter-factual conditional. It is true that every person now in this room is safe from freezing. It is also true that every person now in this room is English-speaking. Now consider a certain Eskimo who is at this moment nearly frozen to death somewhere in the Arctic. If he were now in this room he would be safe from freezing, but he would not be English-speaking.   [Goodman, 1954]

In the next section, I would like to explore this connection further. That is, I will assume that the distinction Goodman draws between accidental and non-accidental generalizations is responsible for the distribution of telescoping discourses. I speculate (though I will not present any arguments for this processing hypothesis) that recognizing a generalization as non-accidental is what may allow the processor to insert the relevant generic adverbial quantifier into the representation of the

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[12]As far as I can tell, Goodman's observation is independent of the kind of predicate used. Relevant examples can for instance be found with predicates typically considered individual-level as well as stage-level ones.

telescoped clause. A principle like this could account for the observation that overt generalizing expressions like *usually* or *generally* sometimes improve the acceptability of marginal telescoping examples. I argue below that the assumption that a generic quantifier is present in the "telescoped" sentence is all that is needed to arrive at the correct representation for a telescoping discourse. I will present the implementational aspects of the proposal after presenting some new evidence that may support the claim that telescoping is related to non-accidental generalizing discourses.

2.6 Acceptability ratings of telescoping discourses

If telescoping is in fact tied to non-accidentality, then it should be possible to create discourse pairs that are biased towards a non-accidental and an accidental interpretation and observe corresponding differences in acceptability. This is what the following study tried to accomplish. Since changing the content to bias for a non-accidental or an accidental reading may influence the acceptability of the discourse sans telescoping, simple (co-)referential control cases were added to the study to control acceptability independently of telescoping.[13]

Materials   For the study, 16 two-sentence discourses were constructed.[14] Several of the discourses involved overt modal verbs, while several others were "bare" telescoping discourses. (51a-b) is an example of a bare telescoping discourse in its non-accidental condition, i.e. the one that is expected to be acceptable. A DP

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[13]My thinking about these examples has changed a bit from the time the study was developed. I used to think that a broader connection was sufficient to license telescoping, something like Kehler (2002)'s cause-effect relation, under which Kehler discusses a number of examples that do not have a law-like character, and do not support counterfactual reasoning. I believe now that this category is too broad, as many of these examples do not support telescoping either. However, most of the items constructed for the study also fit the narrower class of law-like non-accidental statements.

[14]The study was conducted in German, partly to establish a data set in a language other than English, and partly because pronouns in German agree in grammatical gender, a fact that allowed to exclude potential ambiguities as to the intended antecedent. I do not have any reason to expect the two languages to behave differently. All items can be found in appendix A.

quantified by *jede(r|s)* ('every') in the first sentence served as an antecedent (or potential 'binder') for a pronoun in the second sentence. The pronoun was of the grammatical gender required by the antecedent NP, and no other matching antecedents were available.

(51)   a.   Jeder Hausmeister trägt   einen grossen Schlüsselbund mit   sich
                every janitor   carries a   large   key chain   with SELF
                herum.
                around
                'Every janitor carries around a large key chain.'

        b.   Er hat damit   Zugang zu allen Räumen.
                he has with that access   to all   rooms.
                'With that, he has access to all rooms.'

These discourses were then modified in two ways. First, the second clause was modified so as to express an accidental (though in most cases reasonably plausible) generalization. To further bring out an accidental reading, some of the discourses contained expressions like *also* or *in addition*, while in some of the non-accidental cases expressions like *thus*, *therefore*, or *for that reason* were used.

In the example at hand, the second clause was changed to (51c) below.

(51)   c.   Er hat auch schon seit einigen Jahren graue Haare.
                he has also since   several years gray hairs.
                'He has also had gray hair for several years.'

It might well confirm to experience that all janitors have gray hair. However, most likely this generalization is understood as merely accidental, descriptive of all its instances (unless of course we have reason to believe that being a janitor logging around that big keychain *leads* to having gray hair). In that way, it contrasts with the previous case in (51a-b), which expressed a law-like generalization. Being a janitor with a keychain plausibly leads to room access, while having gray hair seems at best tangentially related. Note also that if we take the non-accidental

(51a-b) to be true, we take it to be predictively true of any (future) janitors we are to encounter. (51a-c) on the other hand, even if true, does not support such predictive reasoning.

Telescoping in the absence of non-accidentality is predicted to sound marked or unacceptable, i.e. it is expected that in an acceptability rating task discourses of the type (51a-c) are rated worse than discourses of the type (51a-b). To ensure that a finding like this would genuinely indicate a problem with telescoping in the absence of non-accidentality, and not a general incompatibility of the sentences in accidental discourses, two control cases were created in which the quantificational antecedent was replaced with a referential one. In the case at hand, (51a) was changed to (51a') below.

(51) a'. Unser Hausmeister trägt   einen grossen Schlüsselbund mit   sich
           our   janitor   carries a   large   key chain   with SELF
           herum.
           around
           'Our janitor carries around a large key chain.'

Any independent problem with the accidental discourses is expected to be present in the referential version as well as in the quantificational version.

Predictions The design took two factors into account (antecedent type and discourse type); each factor had two levels (quantificational vs. referential and non-accidental vs. accidental). This resulted in four types of discourses overall, illustrated in Table 2.1. If telescoping is in fact tied to non-accidental discourses, then we expect that, independent of any potential general differences between non-accidental and accidental cases, discourses of the particular type *quantificational/accidental* should be markedly worse. That is, any main effects found in the study should be qualified by an interaction in the indicated direction.

prediction	'template'	antecedent type	discourse type	example
telescoping, 'good'	*every – therefore*	quantificational	non-accidental	(51a-b)
telescoping, 'bad'	*every – and also*	quantificational	accidental	(51a-c)
control cases	*the – therefore*	referential	non-accidental	(51a′-b)
	the – and also	referential	accidental	(51a′-c)

Table 2.1: Discourse types for acceptability rating study.

Participants and Procedure   16 discourses were constructed in 4 versions each. 24 native speakers of German of varying ages and backgrounds participated in the survey. The items were counterbalanced, i.e each participant was shown exactly one version of each of the 16 items, totaling 4 instances of each discourse type. Interspersed between the experimental items were 32 unrelated filler discourses, some of them of similar shape, but none that were telescoping discourses. Participants were asked to rate each discourse on a scale from 1 to 5, where 1 was labeled "ganz normal" (completely normal), and 5 was labeled "recht seltsam" (quite strange).[15]

The discourses were presented in a frame by frame self-paced reading style, with three frames per sentence, the pronoun in the first frame of the second sentence. No differences in the reading times could be shown, though any potential speculation about the informativity of this (non-)result has to be barred due to two oversights. Given the focus on the acceptability rating at the end of each sentence, it is unclear if any effects of difficulties in pronominal resolution can be expected to surface in relatively coarse reading time measurements. More directly, however, the response time for the final acceptability judgment was not measured, that is any possible effects that could have surfaced after the completed reading of the two sentence discourse would have gone unnoticed. For these reasons, I will focus exclusively on the acceptability judgements in the following.

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[15] The orientation of the scale from 1 (best) to 5 (worst) may seem counter-intuitive but corresponds to the values assigned to numerical grades in the German school system.

Results of 2x2 ANOVAs	by item	by subject
Interaction	$F_{1,62} = 12.95, p < .001$	$F_{1,94} = 8.53, p < .005$
Discourse type	$F_{1,62} = 26.6, p < .001$	$F_{1,94} = 17.43, p < .001$
Antecedent type	$F_{1,62} = 26.75, p < .001$	$F_{1,94} = 18.54, p < .001$

Table 2.2: Analysis of acceptability ratings

Results Main effects of both antecedent type and discourse type were found, but these were qualified by a large interaction between the two factors. Discourses that were quantificational and accidental were rated worse than discourses that were quantificational and non-accidental (3.92 vs. 2.05). There was only a small, non-significant numeric trend in the same direction in the referential control cases (1.95 vs. 1.83). The boxplot in Figure 2.1 on the next page shows the distribution of the subjects' mean ratings for the four conditions. Two-way ANOVAs showed the interaction between the two factors to be highly significant, as summarized in Table 2.2 above.

Discussion The findings of the experiment support the hypothesis that the a subsequent sentence can be understood as telescoped if it expresses a non-accidental generalization, but not if it expresses an accidental one. The results suggest that this requirement is specific to telescoping, since no result of this sort could be found in the co-referential cases.

It would be interesting, at a future point, to see if the expected correlation to Goodman's observation that only non-accidental generalizations support counterfactual reasoning could be established. A follow-up experiment of this sort would be relatively easy to create. One could simply try to replicate the results of the above experiment and follow up with a questionnaire that asks people to judge corresponding counterfactual statements, along the lines of (52) below.

(52)   Scenario: Alex, Jad and Carl are janitors here. They carry around big
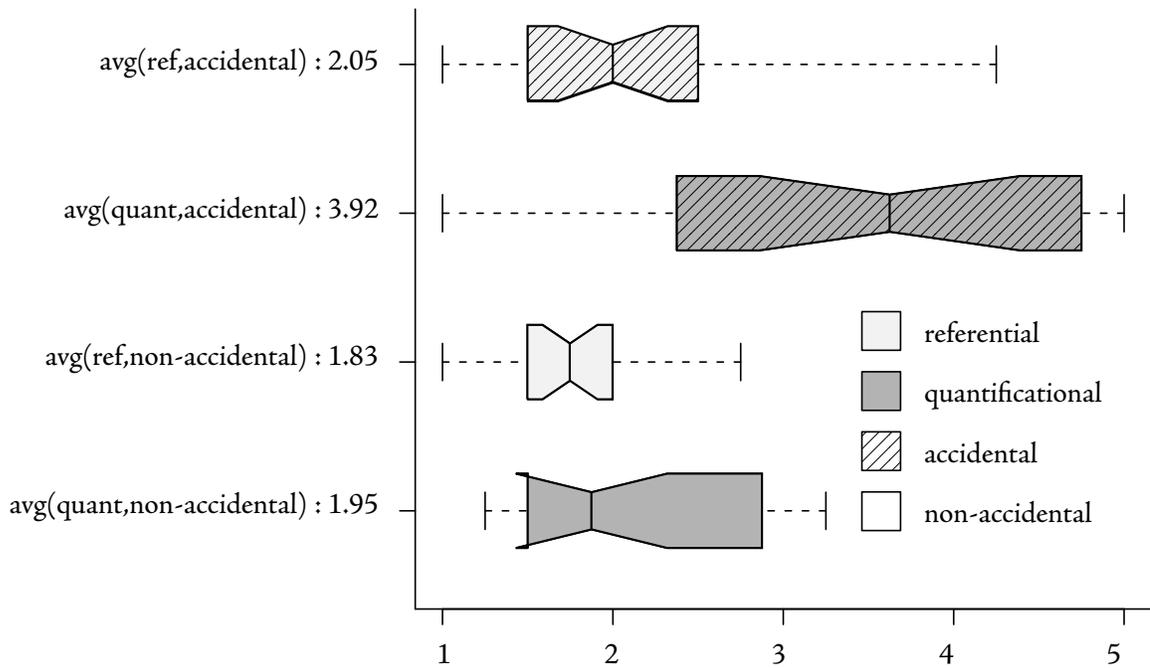
Figure 2.1: Average acceptability judgements for two sentence discourses

keychains. With those, they have access to all rooms. They also all have gray hair.

    a.   If Laurence were a janitor here as well, and carried around a big key chain, would he have access to all rooms?

    b.   If Laurence were a janitor here as well, and carried around a big key chain, would he have gray hair as well?

2.7   Non-accidentality and preserving the scope constraint

If the study above lent some appeal to the idea of exploring an account that connects non-accidentality to telescoping, the following section will try to spell out some aspects of a proposal along these lines. Based on the empirical arguments in favor of the scope constraint and against subordination accounts, I will present an account that assumes that the quantifier in the first clause is not responsible

for the binding of the pronoun, that is, I will assume that telescoping is not a form of true subordination, in the sense that the pronoun is neither syntactically nor semantically in the scope of its apparent antecedent quantifier. Based on the arguments raised against the numberless pronoun account, I will not argue that the co-varying pronoun refers to a plurality either. Rather I will assume that a second, independent quantifier is responsible for the variable interpretation of the pronoun (following in this respect Roberts' modal subordination account, and Poesio and Zucchi's and von Fintel's accounts of telescoping). The connection to non-accidental generalizations will come about by assuming that the quantification in the second clause is a form of generic quantification associated with character- izing sentences introduced by a non-overt adverbial quantifier (see for instance Krifka et al., 1995).

Since in the problematic cases of telescoping, no overt part of the sentence corresponds to the required quantifier, I assume that the language processor has to insert a covert quantifier into the representation. I speculate that a conflict arises with the insertion of the quantifier when the second sentence is unlikely to express a true non-accidental generalization, that is, when the meaning of the operator to be inserted and the content expressed by the overt part of the sentence are at odds. Since the insertion of the operator has to rely on clues from the overt material, the possibility of such a conflict seems natural to me. On the other hand, no such requirement holds for cases where a quantificational adverb is overtly expressed. This seems to be supported by the contrast in (53), observed by Sells (1985). In (53a), the processor has to insert an operator since no antecedent for the pronoun *it* in the second clause is available, however the content of the clause does not lend itself naturally to a generalizing interpretation (unless, of course, we happen to know that the world is such that being a Korean rice farmer's cart means, by some general law, to be old and rickety – note how in this case the acceptability of (53a)

improves). (53b) in contrast makes the generalizing pattern explicit, independently of our knowledge of plausible generalizations.

(53)   a.   Every rice farmer in Korea owns a wooden cart. *It is a rickety old thing.

         b.   Every rice farmer in Korea owns a wooden cart. Usually, it is a rickety old thing.

Similarly, Pelletier and Asher's examples in (55), as far as I can tell, strike us as either false or odd (contrasting with, for instance, with the ones in 54), but can express true generalizations without problems once *usually* or some similar expression is inserted, as in (56) below.

(54)   a.   Snakes are reptiles.

         b.   Guppies give live birth.

         c.   Crocodiles live to an old age.

(55)   a.   #Leukemia patients are children.

         b.   #Seeds do not germinate.

         c.   #Crocodiles die before they attain an age of two weeks.

(56)   a.   Leukemia patients usually are children.

         b.   Seeds generally do not germinate.

         c.   In a significant number of cases, Crocodiles die before they attain an age of two weeks.   [Pelletier and Asher 1997, p. 1132]

I will address two technical challenges for an account along those lines, namely what the generic quantifier quantifies over and how the pronoun in the second sentence is interpreted and the perceived co-variation comes about. Before doing so, I will discuss some of the literature that draws a connection between non-

accidental generalizations and generic or characterizing statements.

2.7.1 Genericity and non-accidentality

Goodman (1954) discusses the statements in (57a) and (58a), and argues that the former is an instance of a law-like (non-accidental) generalization, while the latter, even if may well happen to be true, is not.[16] As expected, the former then supports counterfactual reasoning (as in 57b), while the latter doesn't.

(57)   a.   All butter melts at 150 F.

        b.   If that piece of butter had been heated to 150 F, it would have melted.

(58)   a.   All the coins in my pocket were silver.

        b.   #If this penny had been in my pocket, it would have been silver.

Generic statements (i.e. *characterizing sentences* in Krifka et al., 1995's terminology, or *nomic* sentences) seem to be sensitive to the accidental/non-accidental distinction as well. Lawler (1973) observed that if a property holds of an individual accidentally, this state of affairs cannot be expressed with a generic statement. This extends to Goodman's examples: both bare plurals and singular indefinites can successfully be used to express a non-accidental generalization, as in (59) below, but neither is acceptable to express an accidental one, as in (60).

(57)   c.   Butter melts at 150 F.

        d.   A piece of butter melts at 150 F.

(57)   c.   #Coins in my pocket are silver.

        d.   #A coin in my pocket is silver.

Lawler thus hypothesizes that non-accidentality is a property required for generic statements.

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[16]Goodman's observation is unrelated to the mass/count distinction in his examples.

> A generic states (somehow) that the action has been and probably will continued to be performed in the appropriate circumstances, and that this is no accident. [Lawler, 1973, p. 8]

The next three sections briefly discuss a few possible hypotheses about what non-accidental generalizations may be.

Non-accidental generalizations and essential properties

Lawler, among others, expresses the idea that non-accidental properties are in some way essential to the individual they are predicated of. Burton-Roberts (1976), for instance, proposes an account where generic sentences like (59a) below are derived from definitional sentence like (59b).

(59)   a.   A beaver builds dams.

     b.   To be a beaver is to build dams.   [Burton-Roberts, 1976, p. 413]

Greenberg (2003) points out that in restricting generic statements to those with property predications that are in some sense essential, one has to be careful to retain the ability to distinguish between generic statements that are acceptable though false, and ones that are unacceptable. (60a) below for instance is of the former category. While monophony is certainly not an essential property of madrigals, it seems to make a plausible candidate for such a property, hence (60a) ends up acceptable, though false. (60b) on the other hand doesn't seem to strike us as having sufficient potential for law-likeness, the sentence is perceived as unacceptable.

(60)   a.   A madrigal is monophonous.

     b.   *A madrigal is popular.

Furthermore, Greenberg points to acceptable examples with properties that don't seem to be essential, at least not in an intuitive sense.[17] (61a) may well be true, and support counterfactuals like (61b), even though we might think of a Burton-Roberts' style paraphrase as in (61c) as a rather questionable statement.

(61) a. A refrigerator costs about NIS 8000.   [Greenberg, 2003, p. 48]

      b. If this were a real refrigerator, it would cost about NIS 8000.

      c. #To be a refrigerator is to cost about NIS 8000.

Lastly, if one thinks of essential properties in a modal way as those that hold of an individual in all possible worlds, it is not immediately clear how essential properties could be involved in counterfactual reasoning.

I will assume that in expressing generic statements, we thus seem to rely on generalizations that we recognize as good candidates for a law-like statements or rules, while these generalizations don't necessarily align with at least an intuitive notion of essential properties.

Singular indefinites and different notions of non-accidental generalizations

Lawler's examples in (62) below show that a distinction may exist between bare plurals and singular indefinites in that support of a law-like or non-accidental property seems more important for the latter than for the former.[18]

(62) a. Madrigals are polyphonic.

                (non-accidental property, characterizing reading available)

      b. A madrigal is polyphonic.

      c. Madrigals are popular.

                (accidental property, only non-characterizing reading)

      d. *A madrigal is popular.   (on a non-referential reading)

---

[17]Greenberg attributes this argument to Cohen (2001).

[18]In these examples, Lawler only discusses the contrast for singular indefinites (p .112).

The observation that singular indefinites and bare plurals may not form a uniform class with respect to the non-accidentality requirement has been taken up in more detail recently by Cohen (2001) and Greenberg (2003).[19] Both Cohen and Greenberg argue that indefinite singulars express generalization that follow a law-like non-accidentality rule. For Cohen, these rules are basic entities. A generic sentence with an indefinite singular claims the corresponding rule to be in effect. Greenberg argues for a modal view, but builds into the semantics of generic statements a requirement according to which the predicated property holds of the referent of the indefinite singular in virtue of a (contextually provided) property it possesses. Bare plurals on the other hand can express generalizations that Greenberg describes as descriptive non-accidentals. She uses the term non-accidental here because some characterizing sentences with bare plurals still seem to support counterfactual reasoning. It is for instance quite possible to imagine a music publisher advising a client who wrote an aria of the following.

(63)   You know what, madrigals are popular these days. I bet if your aria were a madrigal, it would be really popular.

A similar point can be made based on an example that Woodward (2003) cites from Lyon (1976/77, p. 115)

A museum has adopted a policy such that
All of the Sisleys in its possession are hung in room 18.
You are ignorant of this policy and ask, regarding some painting in room 17, whether it is a Sisley. You are told in response:
If this painting were a Sisley, then it would be in room 18.
[Woodward, 2003, p. 280]

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[19]For a discussion of two notions of law-likeness (an *inductive*, or, as Greenberg calls it, *descriptive* notion and a *deductive* or *rule-based* notion) in accounts to generic statements, see also Carlson (1995).

The generalization with a bare plural in (64a) seems to be an accurate description of the the facts in Lyon's scenario, while the generalization with an indefinite singular in (64b) sounds rather strange.

(64)   a.   Sisley paintings are hung in room 18.

        b.   *A Sisley painting is hung in room 18. (on the characterizing reading)

Woodward remarks that the generalization above supports counterfactual reasoning, even though "it is no law and is a dubious candidate for a causal or explanatory generalization."

Note however the contrast to Goodman's Eskimo scenario (p. 39). While using a bare plural to describe the situation, as in (65a), may not sound completely unmarked, there still seems to be a contrast to the unacceptable singular indefinite in (65b).[20] Yet despite the potential availability of a bare plural, counterfactual reasoning is still not supported.

(65)   a. ?*People in this room are English-speaking.

        b. *A person in this room is English-speaking.   (characterizing reading)

Differences between the use of indefinite singulars and bare plurals in characterizing statements then could point to the existence of different notions of non-accidentality, as Greenberg and Cohen argue. Nevertheless, I will, for the remainder of the chapter, keep using the terms non-accidental and law-like generalization interchangeably.

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[20]Carlson (1977a, p. 316ff.) judges bare plural subjects with property predicates (or individual-level predicates, in his terminology; see chapter 3) as ungrammatical. It would be helpful to have a larger amount of data to qualify the reliability of the contrast I seem to perceive in (65) above.

Non-accidental generalizations, generic statements and quantification

We have seen then that law-like generalizations play an important role not only in the semantics of counterfactuals, but also in that of generic statements. The notion of law-likeness in fact seems to be the crucial part in a semantics of generic statements, since, even though generic statements can often be roughly paraphrased with universally quantified statements, the mere number of instances that confirm the generic statement neither seems to be crucial, nor easy to pin down. As Pelletier and Asher (1997) discuss, in the world we live, (66a) seems true and (66b) either infelicitous or false, even though a significant number of crocodiles don't live through their first two weeks.

(66)   a.   Crocodiles live to an old age.

        b.   Crocodiles die before they attain an age of two weeks.

Similarly, Carlson (1982) discusses the example in (67a) below, where the quantification, thought of in purely cardinal terms, seems weaker than e.g. the one expressed by *most*. Worse, while (67a) seems true, (67b) seems false, or odd, even though a larger number of dogs satisfies it.

(67)   a.   Dogs give milk to their young   [Carlson, 1982, p. 148]

        b.   Dogs are female.

(68), the mail-from-Alaska example discussed in Krifka et al. (1995), can be true even if there has never been any mail from Alaska, or possibly even if Mary was sick on the one day that there has ever been mail from Alaska and her substitue handled it. What (68) seems to say is that there is a set of rules or laws that this world adheres to according to which Mary handles mail from Alaska.

(68)   Mary handled the mail from Antarctica.

Despite the existence of these examples, I will assume below that generic statements can be given a quantificational representation, however, it will have to be quantification over a suitably constrained set of situations.

Generic statements and modality

Examples like the ones above have often been used to argue that the crucial ingredient in generic quantification is not any expression of quantity, but rather that what is relevant is the kind of connection that holds between the predicate and the object it is predicated of. The generalization expressed by this predication seems to have to have a law-like quality. This intuition is often cashed out in semantic accounts involving a form of modality, as argued for instance by Dahl (1975) or Krifka (1988).

> "In an accidental generalization, we only talk about a set of actual cases, whereas nomic statements concern also possible, non-actual cases."
> [Dahl, 1975, p. 100]

> [Characterizing sentences] (Krifka's "I-generics") "cannot be used to express facts which hold just coincidentally, but are law-like statements [...] For example, if some nut were to clip the wings of every existing blackbird then the sentence *A blackbird flies* would nevertheless remain true. If one tries to develop semantic analysis in terms of possible world semantics, [characterizing sentences] cannot be statements with a truth value that can be checked at one index, e.g. the actual word. Instead, we have to take into account a set of indices. Thus, genericity is reconstructed as a modal notion—as some sort of necessity."
> [Krifka, 1988, p. 297, cited from Greenberg, 2003, p. 13]

Greenberg (2003) recently provided such a modal account. She follows a suggestion in Heim (1982, p. 190ff.) that generic sentences involve a modal necessity operator that quantifies over accessible worlds that are picked out by a set of propositions that identify stereotypical worlds, i.e. a stereotypical modal base in a modal framework as proposed in Kratzer (1977, 1981). For Greenberg,

a sentence like (69a) below invokes the existence of a pragmatically restricted "in virtue of" property. It is true iff in all worlds in which being a donkey entails having the in virtue property, being a donkey also entails having short ears (simplified). Further, to account for the unacceptability of (69b), Greenberg proposes that generic sentences presuppose that there must be a good possibility that either being a donkey entails having the relevant property or being a donkey entails not having the relevant property. The contrast between (69a) and (69b) is then explained if there is a good possibility that being a donkey entails having short ears, but not having a name starting with B or C.

(69)   a.   A donkey has short ears.

         b. #A donkey has a name starting with B or C.

In the account outlined below, I will ignore the modal component that is relevant to account for examples like Krifka's blackbird example above.

2.8   Generic statements, situation semantics and telescoping

A less modal semantics of non-accidental generalizations was proposed in Kratzer (1989). Kratzer does not make a formal proposal as to how non-accidental generalizations can be identified, but discusses how the distinction between accidental and non-accidental sentences is reflected in the semantics. According to Kratzer's proposal, non-accidental generalizations differ from accidental ones in that they, if true in a world, are true in all of that world's situations.[21] Accidental generaliza-

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[21]I will, for the purposes of this chapter, not follow Kratzer (2010)'s revision of her 1989 account. In her 2010 paper, Kratzer also takes into account the connection between confirming statements and non-accidental generalizations—a connection that has been discussed in the philosophical literature, e.g. again by Goodman (1954).

> "That a given piece of copper conducts electricity increases the credibility of statements asserting that other pieces of copper conduct electricity, and thus confirms the hypothesis that all copper conducts electricity. But the fact that a given man now in this room is a third son does not increase the credibility of statements asserting that

tions on the other hand can only be truthfully predicated of situations that contain all the individuals that the generalization is about and the properties predicated of them.

Intuitively, we can think of a non-accidental generalization as true in a situation iff we are guaranteed to never encounter any situation that does not confirm to the generalization, no matter how we enlarge the situation. Non-accidental and accidental generalizations are thus logically equivalent, in that they are true in exactly the same worlds. However, they differ in the situations they denote in a world. In the following section I will provide a brief overview of the assumptions underlying Kratzer's situation semantic framework, and then try to show how the understanding of generic statements developed in Kratzer (1989) may prove helpful in accounting for telescoping discourses.

2.8.1   Situation semantics

The discussion above shows that a framework that can make the distinctions advocated for by Kratzer has to be able to talk about parts of worlds. One such framework is the kind of situation semantics developed in Kratzer (1989) and subsequent work. This theory treats situations as atomic entities that are related by

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other men now in this room are third sons, and so does not confirm the hypothesis that all men now in this room are third sons. Yet in both cases our hypothesis is a generalization of the evidence statement. The difference is that in the former case the hypothesis is a lawlike statement; while in the latter case, the hypothesis is a merely contingent or accidental generality. Only a statement that is lawlike—regardless of its truth or falsity or its scientific importance—is capable of receiving confirmation from an instance of it; accidental statements are not."

[Goodman, The New Riddle of Induction]

Kratzer models this in her semantics by assuming that non-accidental generalizations build into their semantics a requirement for what a confirming situation is. In this version, non-accidental statements are no longer true in all situations of a world, but in all situations that contain at least one confirming instance of the generalization, or in the world-situation if there are no confirming instances (given no evidence to the contrary of course). The connection between confirming situations and non-accidental generalizations is certainly an interesting one, and Kratzer's revised proposal provides us with a way of distinguishing pairs of non-accidental properties in a world in which they are both true, which Kratzer argues may provide valuable insights into long-standing puzzles such as Hempel's raven paradox (see Kratzer, 2010 for details).

a part-of relation to other situations, including a maximal situation (not part of any other situation except for itself) that corresponds to a possible world in the realist sense of Lewis (e.g. Lewis, 1986). For a recent overview of the connected linguistic and philosophical issues see Kratzer (2007), which also contains a brief discussion of the possibility of understanding of situations in information theoretic terms.

The crucial ingredient in Kratzer's situation semantics is the part-of relation.[22] Each situation is part of exactly one possible world. Across worlds, situations are related to situations that are part of other possible worlds by a counterpart relation. Propositions are construed as sets of (possible) situations. Logical properties of propositions are defined in a traditional way in that they (except for truth) only depend on the set of possible worlds, as defined in (70).

(70)   Let S be the set of all possible situations and W, a subset of S, the set of all possible worlds. A proposition is a subset of S, that is the set of propositions is the set of all subsets of S, $\mathcal{P}(S)$

   a.   A proposition p is *true* in a situation s iff $s \in p$.

   b.   A proposition p is *valid* iff it is true in all worlds, i.e. iff $p \cap W = W$.

   c.   A set of propositions A is *consistent* iff there is at least one world in which all propositions in A are true, i.e. iff there is a world w such that $w \in \bigcap(A)$.

   d.   A proposition p is *compatible* with a set of propositions A iff $A \cup p$ is consistent.

   e.   A proposition p *follows* from a set of propositions A iff for all worlds w: if $w \in \bigcap(A)$, then $w \in p$.

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[22]While it may be possible to derive the part-of relation in a framework where situations are treated as structured information states, in Kratzer's framework the part-of relation is treated as basic. In this chapter, I will use the $\leq$ symbol for the part-of relation in Kratzer's sense; in chapter 3, I will use the same symbol occasionally to indicate part structures in the lattice structures used to model the domain of plural and mass individuals (Link, 1983). The intended interpretation should be clear from the context.

f.   Two propositions p and q are *logically equivalent* iff they are true in the same worlds, i.e. iff $p \cap W = q \cap W$.

Besides those familiar notions, Kratzer proposes two new relations that make crucial use of situations: lumping and exemplification.

(71)   a.   A proposition p *lumps* a proposition q in a world w iff p is true in w and for all situations s: if $s \leq w$ and $s \in p$, then $s \in q$.

b.   A situation s *exemplifies* a proposition p iff p is true in s and either p is true in all parts of s, or p is false in all proper parts of s (i.e. s is a minimal situation in which p is true).

2.8.2   Telescoping

Now with all the preconditions in place, it is possible to see how the discussion about generic sentences can be brought to account for telescoping. There are two parts to the proposal made here. Telescoping and non-accidentality are connected via the operators involved in telescoping. I propose that the (non-overt) quantifier in the "telescoped" clause is an instance of a generic universal quantifier in the spirit of Kratzer (1989). The quantification will be restricted to situations in which the law-like generalization is applicable. As the discussion above showed, a restriction like this is needed for any quantificational account to generalizing statements. I believe also that it is the right mechanism to account for the so-called exception tolerance of generic statements. If there is a salient reason to exclude a situation from the set of situations quantified over, this reason can be included among the restricting propositions. The second part of the proposal concerns the dependent pronoun in the telescoped clause. I propose that the relevant pronouns are construed as definite determiners followed by a deleted NP as proposed by Elbourne (2005).

For the degree candidate example, repeated in (72) below, the proposed semantics looks as in (73).[23]

(72) a. Each degree candidate walked to the stage.

  b. He took his diploma from the Dean and returned to his seat.

(73) a. $\lambda s. \forall x, s'[s' \leq w_s \wedge \text{ candidate } (x)(s')]$

$$[\exists s''[s' \leq s'' \wedge \text{ walk to stage } (x)(s'')]]^{24}$$

  b. $\lambda s. \forall s'[s' \leq w_s \wedge s' \text{ exemplifies}$

$$[\lambda s'. \exists y \text{ candidate } (y)(s') \wedge \text{ walk to stage } (y)(s')]$$
$$[\exists s''[s' \leq s'' \wedge \text{ return to seat}(\iota y. \text{ candidate } (y)(s'))(s'')]]^{25}$$

Lets look at the two sentences in more detail. The initial sentence quantifies over a set of degree candidates. There have been a number of proposals as to how to implement this quantification in a situation semantic framework. Since (72a) directly quantifies over individuals, I will not discuss here the issue of minimality that arises in adverbial quantification (see e.g. von Fintel, 1995), in which case a relatively simple semantics for universal quantification will do. It is interesting to consider whether the first clause here has to express a non-accidental generalization already. My inclination is to say that this is not the case. In some of the examples we have seen above the first clause described an accidental fact of the world, consider e.g. Fodor and Sag's (11), repeated as (74) below.

(74) Each student in the syntax class was accused of cheating on the exam. He was reprimanded by the Dean.

The fact that every student cheated is an unfortunate accident, the fact that he was

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[23]I am ignoring the exact structure of the verbal predicate, in particular the contributions of tense and aspect here.

[24]w_s indicates the word w that contains s.

[25]The exemplifying situations here will be ones that contain just an individual with the associated property of being a degree candidate.

consequently reprimanded by the Dean could easily be a policy of the school. I do not think that the initial sentence can be entirely disconnected from the second since it helps to recognize the law-likeness of the latter, however it seems to me that it does not in itself need to express a law-like generalization.

Recall that accidental generalizations in Kratzer's framework require all individuals that the generalization is made about to be part of any situation the generalization is true in. At this point one may wonder whether this elimination of "small" situations would be hurtful since the telescoped sentences in the proposal made requires precisely these small situations. Wouldn't they be eliminated if one were to think of sentences as for instance context updates? Thinking of contexts as sets of situations is not a necessary component of situation semantics. I think it is quite plausible to retain a definition of contexts exclusively as sets of possible worlds. In this case, since accidental and non-accidental generalizations have a semantics that makes them true in exactly the same worlds, nothing would be lost by treating the first sentence as an accidental generalization.

The semantics of the telescoped sentence may seem peculiar at first sight. The perceived quantification over individuals turns out to be quantification over situations. What the second sentence requires is that whenever we have a situation in the actual world that our generalization could apply to, in this case a situation with a unique degree candidate that walked to the stage, that situation can be extended into one where this degree candidate conforms to the generalization made, in this case by receiving his diploma and returning to his seat.

The descriptive material associated with the pronouns is assumed to be part of an NP that has been elided under identity leaving the definite article to be rendered as a pronoun, as proposed by Elbourne (2005). That is, the underlying form of the pronoun *he* in the second sentence is as in (75) below.

(75)   *he* = the ~~degree candidate in *s*~~

The semantic representation of the telescoped clause is then arrived at by prefixing the syntactic input with a generic operator with a semantics as given in (76).

(76)   GEN [restrictor] [scope] is true in s iff

$\forall s'[s' \leq w_s \wedge s' \text{ exemplifies } [\![\text{restrictor}]\!]] [\exists s''[s' \leq s'' \wedge [\![\text{scope}]\!](s'')]]$

(77)   GEN [a degree candidate walked to the stage] [he returned to his seat]

It is interesting to look at the restrictor of the generic quantifier here. For the e-type pronoun to be used felicitously, the uniqueness conditions associated with its definiteness have to be satisfied. That requires that the restrictor has to provide situations small enough to contain exactly one degree candidate. The situations exemplifying "a degree candidate walked to the stage" are of the right kind. I assume that the preceding sentence plays a significant role in making salient a set of situations of the right kind. A universal quantifier, by its nature, emphasizes a recurring pattern connected to individuals. It seems only natural that situations corresponding to these particulars make up the restrictor of the subsequent clause.

That context sentences can play this role has been illustrated nicely in a study by Will Evans (Evans, 2005). Evans observes that bridging from plural antecedents to singular indefinites becomes acceptable if content and context provide a natural way of focussing on a particular (atomic) part of the plural antecedent, as illustrated by the contrast in (78) below. Evans describes this process as "zooming in" on the relevant situation.

(78)   a.   Juan drove up to the busy toll booths. The toll taker was rude.

        b.   Juan looked at the busy toll booths. #The toll taker was rude.

It is not always the entire preceding sentence that sets up the relevant set of situations. In telescoping examples involving *no* (which are, I believe relatedly, harder to construct), typically situations exemplifying only the nominal comple-

ment of *no* (existentially closed) provide the restrictor. In Poesio and Zucchi's example in (25) for instance, repeated in (79) below, the VP "pleases these children" is incompatible with the subsequent generalization, and can, hence, not be part of the restrictor.

(79)   No story pleases these children. If it is about animals they yawn, if it is about witches they frown. If it is about people, they fall asleep.

As far as I can tell, for the cases discussed here, the proposal for the meaning of telescoping discourses matches our intuitions about the meaning of these sentence fairly well. Unlike predicted by the insertion account, all degree candidates in the ceremony are assumed to receive their diploma and return to their seats, regardless of the quantificational force of the initial quantifier. If independently justifiable exceptions arise, they can be handled by contextually adding restrictions on set of situations quantified over. The set of situations quantified over is restricted by default by presuppositional expressions.

2.9   Summary and open questions

In this chapter, I have taken a closer look at examples of telescoping, which make up a class of surprising counterexamples to Heim's well-supported Scope Constraint. Despite the fact that examples are relatively infrequent, many instances from the literature sound quite natural to native speakers, and collections of spontaneously produced text contain natural examples as well, for instance the one in (80) below extracted from the British National Corpus.[26]

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[26]This example has been extracted from the British National Corpus Online service, managed by Oxford University Computing Services on behalf of the BNC Consortium. All rights in the texts cited are reserved (more information on the British National Corpus can be found at http://www.natcorp.ox.ac.uk/).

(80)   The menopause is a natural event in every woman's life. It marks the end
         of her periods and her capacity to bear children.

I have argued that at least two questions arise from this, namely what governs the distribution of telescoping discourses, that is what the principles that distinguish acceptable from unacceptable instances of telescoping are, and what theoretical implications these findings have.

With respect to the first question, I have argued that telescoped discourses express a kind of generalizing statement, and have presented some experimental evidence suggesting that this line of thought may be on the right track. In the account that I presented in the end of this chapter, the non-modal, actual nature of these generalizations arose from restrictions placed on the set of situations quantified over.

With respect to the kind of account envisioned, I have argued against two previous classes of accounts. I have argued that examples with less than universal force in the initial clause still show universal quantificational force in the telescoped clause, and observation that is incompatible with subordination accounts. I have further argued that the telescoped pronouns are understood as variables over atomic individuals, not groups, contrary to what seems to be implied by accounts taking them to be maximal potential plural pronouns.

I have then presented an account that is similar to the ones presented by Poesio and Zucchi (1992) and von Fintel (1998). In this account, the cross-sentential binding is only apparent. The variation of the telescoped pronouns is brought about by an independent, covert quantifier in the telescoped sentence. The insertion of this quantifier by the processing mechanism has to be licensed by the content of the discourse. If the overt content is at odds with the generalizing nature required by the covert operator that has to be posited, a conflict arises. No such conflict arises if an overt operator is used, explaining why it is possible to

express generalizations using *usually* or *generally* in cases where the bare statements cannot be understood as generalizing. The cover quantifier semantically amounts to a universal quantifier over a restricted set of situations. The restriction is, among other things, provided by the presuppositional material in the clause. The telescoped pronoun itself introduces a presuppositions, as it is assumed to be the spell-out of a definite DP with a deleted NP, as proposed by Elbourne (2005).

I have left out a number of things that I believe warrant further exploration. No progress has been made towards understanding the mystifying puzzle of why some generalizations seem to make natural candidates for law-like generalizations while others don't. From the proposed semantic representation, no such knowledge can be derived. Furthermore, I have at best alluded to the connection of generalizing statements and modality. Examples like Krifka's blackbird example show that hypothetical situations have to be considered, but the implications of this insight for the non-modal semantics given here have not been explored.

One interesting consequence of the proposal made here is that every proposition lumps all non-accidental generalizations and that a non-accidental generalization is exemplified by all situations. If the notion of exemplification plays a role in a semantics of counting, one may expect that difficulties might arise when combining expressions of counting and generalizing statements. Intuitively, it seems that combining counting expressions and generalizations is indeed a rather odd thing to do. To what extent there is some content to this vague intuition, and whether it can be derived from a semantics of generalizing statements is left open for further exploration.

An observation related to the proposal at hand is reported in Fox and Sauerland (1995).

(81)   a. ?*At the beginning of the dance last night, his$_i$ wife stood behind [every man]$_i$.

b. Some people think that his$_i$ wife stands behind [every man]$_i$.

[Fox and Sauerland, 1995, ex. 33]

Fox and Sauerland observe that (81b) does not seem to exhibit the markedness of (81a), assumed to be an instance of the weak crossover effect. Fox and Sauerland discuss two possible ways to account for the contrast in (81). Either the environments that give rise to the weak crossover effect have to be more limited than previously assumed. In particular, in generalizing statements, no weak crossover effect seems to arise. Alternatively one could assume that the universal quantifier in (81b) has not actually moved to a position where it could bind the possessive pronoun, that is, the pronoun and universally quantified DP are not, in fact, co-indexed as in (81b). In this case the question arises what may be responsible for the non-referential interpretation of the pronoun. Fox and Sauerland's proposal can given an answer to this question. Similar to what has been assumed here, they propose that the pronoun is actually a disguised definite description bound by an unpronounced generic quantifier that binds the situation variable associated with the description. The account for the (illusive, in Fox and Sauerland's terminology) wide scope interpretations and the (again apparent) disappearance of weak crossover effects provided by Fox and Sauerland provide independent evidence in favor of the mechanism assumed in this chapter.

A final question that has not been explored concerns the covertness of the assumed GEN operator. We have seen that overt "relatives" of GEN, such as *usually* or *generall* do not share quite the same characteristics, something that was hypothesized to be connected to the mechanism that allows the processor to insert a covert operator. Barring this caveat, the question arises if we can find a language with an overt counterpart of GEN, and if so, if the distribution of this operator in that language would correspond to the distribution we see for telescoping discourses in English.

CHAPTER 3

LAUTER AND THE INTERPRETATION OF DPS

In this chapter, I will discuss the peculiar German determiner *lauter* and its distribution. In the first part, I will show some restrictions on the distribution of *lauter* that I believe can be explained by assuming that *lauter* does not have what one may call a pronominal form. In the second part, I will show that further restrictions exist that are not captured by this generalization. I will then dive into a discussion about the meaning of DPs, in particular indefinite DPs, and show that *lauter* is systematically incompatible with a class of meanings that have been called *strong* readings of indefinite DPs. I will end the chapter by speculating about the reasons for this restriction and suggest that *lauter* DPs are exclusively predicative and do not introduce their own individual arguments. I will sketch two ideas for strategies that would make this finding compatible with approaches that derive strong meanings of DPs from weak meanings taken to be basic.

3.1 *Lauter*

In this section, I will discuss the peculiarities of the German determiner *lauter*, which has the potential to inform the discussion above. *Lauter* can roughly be translated with *many*, *a whole lot/bunch of*, or *all but possibly a few*. It forms a DP by combining with NPs headed by plural count nouns (see 82a-b) or mass nouns (both singular inflecting, as in 82c-d, and plural inflecting ones, as in 82e).

(82) a. Peter hat schon   lauter rote Socken im   Schrank.
          Peter has already *lauter* red socks   in the closet

          'Peter already has many red socks in the closet.'

      b. Auf dem Dach sitzen lauter Spatzen.
          On the roof sit   *lauter* sparrows.

          'There are a whole lot of sparrows sitting on the roof.'

      c. Peter hat lauter Marmelade im   Gesicht.
          Peter has *lauter* jam   in the face

          'Peter has lots of jam in his face.'

      d. In unserem Haus wohnt lauter Gesindel.
          In our   house lives   *lauter* riffraff

          'There's a whole lot of riffraff living in our house.'

      e. Als   er eingezogen ist, hat er lauter echt   abgefahrene Möbel
          When he moved in   is   had he *lauter* really rad   furniture
          mitgebracht.
          brought.

          'When he moved in, he brought a whole lot of really crazy furniture.'

There are few further restrictions on the complement NP, as far as I can tell; the

ones that I am aware of will be discussed in the first three sections of this chapter.

In particular, *lauter* can contain both collective and distributive adjectives, as (83)

and (84) illustrate.

(83) a. lauter aneinandergereihte Legosteine
          lauter in a row arranged   lego bricks

          'a bunch of lego bricks arranged in a row'

      b. lauter lose   aufeinander   gestapelte Dreiecke
          lauter loosely onto each other stacked   triangles

          'a bunch of loosely stacked triangles'

      c. cf: *Dieses Dreieck ist nicht aufeinander   gestapelt.
              this   triangle is not   onto each other stacked

(84) lauter große Kisten
      lauter large boxes

The contemporary determiner-like *lauter* is historically related to a homophonous adjective with the meaning 'pure' (for a detailed discussion of the etymology of adjective and determiner *lauter* see Eckardt, 2006, p. 211ff.). The adjectival form of *lauter* is still part of contemporary German, though it belongs to a marked register. The example in (85) illustrates both the determiner and the adjectival form. Besides the meaning difference between adjectival *lauter* and the determiner form, (85) highlights an additional difference. The adjective *lauter* shows obligatory adjectival agreement with the noun, while the determiner belongs to the class of German determiners without any inflectional forms. In contemporary German, adjectival and determiner *lauter* are clearly two different lexical items.[1]

(85) Bei uns   gibt es lauter lautere Weine aus   der Region.
      At our place gives it *lauter* pure   wines from the region.
      'At our place, there are many pure wines from the surrounding region.'

In the syntactic literature, determiners with a cardinal meaning have sometimes been argued to occupy adjectival positions within the DP (see e.g. Hoeksema, 1983, or, for German, Bhatt, 1990), in particular since they sometimes co-occur with a determiner, as for instance in the examples in (86) below, or are modified by an adverb, as in the examples in (87).

(86) a. Bill didn't like the few choices he had.

      b. Susan solved one of the four main puzzles.

      c. Die vielen Investitionen haben etwas   bewirkt.
          The many investments   have something effectuated.
          'The many investments have made a difference.'

(87) a. Very few senators have experienced this problem.

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[1]*Lauter* is also homophonous with the comparative form of the adjective *laut* ('loud').

b.   Man hat ihm sehr wenig Geld   angeboten.
     One has him very few   money offered.
     'He was offered very little money.'

Lauter's adjectival heritage and its cardinal nature seem to make it a natural candidate for an adjectival determiner. However, *lauter* can not co-occur with other determiners, as illustrated in (88). It can, in general, not be modified by adverbs either, as illustrated in (89). An interesting exception might be the adverb *fast*, 'almost'.[2] In many respects these initial data highlight that *lauter* behaves quite

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[2]The status of *fast* with *lauter* is not entirely clear. To me, the examples sound fairly marked. However, cases of the construction are attested. In (i) below are historical cases. Grimms Deutsches Wörterbuch for instance cites (ia), Eduard Hanslick's 1884 "Aus dem Opernleben der Gegenwart" contains (ib), and the Göttingische Anzeigen reports about carnations on Nov. 9, 1758 with (ic).

(i)   a.   Es gibt hier fast   lauter wohlhabende Leute.
             It gives here almost *lauter* affluent   people.
             'There are almost exclusively affluent people here.'
        b.   Was   in den beiden letzten Akten folgt,   sind fast   lauter bekannte Melodien,
             What in the both   last   acts follows are almost *lauter* known   melodies,
             konventionelle Phrasen, verbrauchte Effekte.
             conventional   phrases, used-up   effects.
             'What follows in the two last acts are almost exclusively well-known melodies, conventional phrases, used-up effects.'
        c.   Unter   den Nelken   geben die gefüllten auch einigen wiewohl nicht häufigen
             Among the carnations give   the filled   also some   though not   frequent
             Saamen, der aber fast   lauter gefüllte Blumen zeugt.
             seed   that but almost *lauter* filled   flowers produce
             'The filled carnations have some, though not frequent, seeds that produces almost exclusively filled flowers.'

There are also a number of recent examples of fast lauter, e.g. the title of a book by Johanne von Gemmingen (1901-2001) in (iia), an example from a parenting internet board from 2007 in (iib), or an example from the newspaper Frankfurter Rundschau in (iic).

(ii)   a.   Die Schwaben und andere Leut: Fast   lauter wahre Geschichten.
             The Swabians and other   folk: Almost *lauter* true   stories.
             'The Swabians and other folk: Almost all true stories.'
        b.   Nur lädt   er fast   lauter Mädchen ein und jetzt frag ich mich, was wir
             Only invites he almost *lauter* girls   PRT and now ask I   myself what we
             mit   denen spielen sollen.
             with those play   should
             'But then he invites almost exclusively girls, and now I ask myself what games we are supposed to play with them.'
        c.   Es waren fast   lauter Ausländer, aus sechs Nationen, die in dieser
             It were almost *lauter* foreigners, from six   nations,   who in this
             Mannschaft spielten, mit   fremdem Paß.
             team   played, with foreign   passport.

differently than its closest 'meaning neighbors' like *viele*, *alle*, and *nur*, as illustrated in the following examples.

(88)   a. *die lauter Pfifferlinge, *einige lauter Pfifferlinge
             the *lauter* chanterelles, some *lauter* chanterelles

[Eckardt, 2006, p. 204]

        b.   die vielen Pfifferlinge
             the many chanterelles

(89)   a. *sehr lauter Pfifferlinge, sehr viele Pfifferlinge
             very *lauter* chanterelles, very many chanterelles

        b. ?fast   lauter Pfifferlinge, fast   alle Pfifferlinge
             almost *lauter* chanterelles, almost all   chanterelles

        c. fast   nur Pfifferlinge
             almost only chanterelles

        d. *genau lauter Pfifferlinge, genau drei Pfifferlinge
             exactly *lauter* chanterelles, exactly three chanterelles

    Lauter has to precede all other adjectives, as illustrated in (90).

(90)   lauter tolle Ideen, *tolle lauter Ideen
       lauter great ideas

    While many adjectival elements in German have counterparts that can occur in adverbial contexts, *lauter* again patterns with unambiguous determiners in that it cannot occur in adverbial contexts, see (91).

(91)   Hans hat viel / nur   / *lauter geschlafen.
       Hans has a lot / only / *lauter* slept.
       'Hans slept a lot.', 'All Hans did was sleep.'   [Eckardt, 2006, p. 204]

'There were almost only foreigners playing in this team, from six nations, with a foreign passport.'

Whether differences in acceptability of these examples are due to different regional varieties or the result of other factors is not clear to me at this point.

This fact may be challenging for an account that treats *lauter* as an adjectival form in connection with an ordering restriction to account for the observation illustrated in (90). If the ordering restriction were to be derived via an assumed fixed hierarchy of positions, *lauter* would have to occur relatively high in such a hierarchy. However, the higher positions in an adjectival hierarchy also tend be those that we expect to be more likely to have adverbial counterparts.

I take the observations above as good indications that *lauter* patterns with items that would typically be treated as unambiguous determiners, rather than adjectives. Dipper (2005), however, cautions that many of the above properties are plausible candidates for a semantic explanation of the restrictions observed, and argues that inflectional properties can be an additional guide to differentiating adjectival and determiner positions in the German DP. I will outline Dipper's argument below. Unfortunately, because of the lack of inflectional marking on *lauter*, the argument will not be conclusive for *lauter* DPs.

Dipper proposes that declension patterns in the DP can in many instances be a reliable morphosyntactic diagnostic tool to distinguish adjectives from determiners. The diagnostic declension pattern under discussion is traditionally called strong or weak declension. Dipper argues that within each DP, strong declension must obligatorily be realized, and that it can be realized either on the determiner head or on the complement NP. For determiners, Dipper argues, declension correlates with the inflectional properties of the determiner. If the determiner shows morphological inflection (for gender, case, or number), it will be specified as strong, and consequently the complement NP will exhibit weak declension. If the determiner does not inflect, strong declension has to be realized on the complement NP, in which case it will be realized on all adjectives and nouns that have inflecting forms (it is important to note here that not all adjectives and nouns do). This is illustrated in the examples in (92) below.

(92) NOM,SG,MASC: ein/kein/manch   alter   Gelehrter
                    an[∅]/no[∅]/some[∅] old[ST] educated[ST]

      NOM,SG,MASC: der/mancher   alte   Gelehrte
                    the[ST]/some[ST] old[WK] educated[WK]

      ACC,SG,MASC: einen/keinen/manchen alten   Gelehrten
                    an[ST]/no[ST]/some[ST] old[WK] educated[WK]
                    'the/an/no/some old educated person'

Unfortunately, as Dipper observes, there is a small class of elements for which this reasoning is inconclusive, and *lauter* happens to be among them.

(93) ACC,PL,MASC: die/diese/alle/keine   alten   Gelehrten
                    the[ST]/those[ST]/all[ST]/no[ST] old[WK] educated[WK]

      ACC,PL,MASC: lauter   alte   Gelehrte
                    lauter[∅] old[ST] educated[ST]
                    'some/no/a lot of old educated people'

As illustrated in (93), *lauter* does not show any inflectional morphological marking. What (93) shows as well, is that *lauter* combines with an NP with strong agreement. However, it is not clear what triggers the strong agreement. If *lauter* were a determiner, we would expect it to trigger strong agreement on the following NP because of its lack of inflectional marking. If it were an adjective on the other hand, we would expect the remainder of the NP to show strong agreement as well, because of the assumed absence of a strong determiner head. Thus the test remains inconclusive.

I will assume that the initial arguments constitute fair evidence that determiner *lauter* occupies a determiner position in the DP, however I do not think that the discussion in the remainder of the chapter would be difficult to reconcile with a different conclusion.

3.2 A weak meaning for *lauter*

Determiner *lauter* has a meaning that appears hard to capture. In some contexts, it appears almost like a universal item. (94) below, for instance, seems to describe someone as a straight-A student. Similarly, one could object justly to (95) by saying that the choir didn't consist *entirely* out of bassists.

(94)   In der Schule hatter er immer lauter Einser.
        In the school had   he always *lauter* As
        'In school, he's always had all As.'

(95)   a.   Auf der Bühne stand ein Chor aus   lauter Bassisten.
              On the stage   stood a   choir from *lauter* bassists.
              'There was a choir made up entirely from bassists on the stage.'

        b.   Das stimmt nicht, in dem Chor waren auch ein paar Tenöre.
              That is true not,   in the choir were also a   few tenors.
              'That's not true, there were also a couple of tenors in the choir.'

This intuition about *lauter* is also in line with the facts about modifiability by *fast* ('almost') that were mentioned above. *Fast*, like its English counterpart *almost*, modifies only expressions referring to fixed points on a scale (all, none, numerals, or expressions like 'half of'), but not vague or context-dependent expressions like 'some', 'many' and 'few' (for a recent discussion of *almost* see e.g. Penka, 2006 and references therein, e.g. Partee, 1986). If *lauter* is a universal item, modifiability with *fast* is expected.

(96)   Es waren fast   lauter Ausländer, aus   sechs Nationen, die   in dieser
        It were almost *lauter* foreigners, from six   nations,   who in this
        Mannschaft spielten.
        team   played.
        'The players on that team were almost all foreigners, from six different nations.'

(97)   a.   He knows almost all / every / any / no secret(s).

b. He knows almost 20 / half of the secrets.

c. *He knows almost some / many / few secret(s).

However, as discussed in detail by Eckardt (2006), *lauter* would be a rather peculiar universal, namely one that violates conservativity, as illustrated below. If the *lauter* DP in the sentence in (98a) below had a meaning akin to that of *every* DPs in English, we would expect the meaning in (98c), not the actual meaning of the sentence (something more along the lines of 98b).

(98) a. In dem Korb   sind lauter Reitzker.
In the   basket are *lauter* saffron milkcaps
'There's nothing but saffron milkcaps in the basket.'

b. $\forall x[\text{in-the-basket}(x) \rightarrow \text{saffron-milkcap}(x)]$

c. $\forall x[\text{saffron-milkcap}(x) \rightarrow \text{in-the-basket}(x)]$.

Of course, the English item *only* has been much discussed as an exception or counterexample to Barwise and Cooper's conservativity universal. However, *lauter* displays none of the properties of *only* that have typically played a role in accounting for its behavior, most prominently a flexible association with focussed elements.

Moreover, in many cases, exceptions seem to be quite acceptable when claims are made using *lauter*. The discourse in (99) seems quite natural, and the initial speaker does not seem to be forced to take back his claim about *lauter* Ds despite the presence of multiple Bs. Instead, (99) is naturally understood as a claim that there are a fair number of Ds on the report, where expectations of what counts as 'a fair number' are rather vague.[3]

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[3]The example in (94) above has this reading as well, however I feel that the presence of *always* biases it to the "straight-A" interpretation given.

(99)   Peter hat ja   lauter Fünfen auf dem Zeugnis!
       Peter has PRT lauter Ds   on the final report
       'Peter's final report is teeming with Ds.'

       a.   Aber in Sport und Bio hat er doch 'ne Drei.

            'Well, he's got B-s in P.E. and Biology, no?'

       b.   Klar, aber schau dir doch mal den Rest an!

            'Sure, but look at the rest!'

Worse yet, in many cases *lauter* does not seem universal at all.

(100) a.   Es gibt schon   seit Jahren überhaupt keine Reitzker
            It gives already since years   at all   no   saffron milkcaps
            mehr!
            anymore
            'There haven't been any saffron milkcap mushrooms for years!'

       b.   Quatsch, da drüben im   Korb sind doch   lauter
            Nonsense, over there in the basket are   however *lauter*
            Reitzker.
            saffron milkcaps
            'Nonsense, there are a whole bunch of saffron milkcaps in the basket

            over there.' (There may be many other mushrooms as well.)

Lauter thus seems to require a quantity that is considered, in some sense, larger

than expected, but with considerable variation as to what counts as larger than

expected in the given context.

Interestingly, while *lauter* can combine with mass nouns, as seen above, it does

not seem to be able to specify amounts itself. (101) illustrates this observation.

What (101) claims to be large is the number of coins in the dish. Had *lauter* been

replaced with *viel*, the natural interpretation of the sentence would have implied a

large sum of money. In contrast, (101) is compatible with an interpretation where

the sum of money is small, as long as the number of coins is large. I believe similar

intuitions hold for the English translations *a bunch of* versus *a lot of*.

(101)   a.   Wir [gingen] alle zum   Opferteller [. . .] und warfen eine
             We walked   all   to the alms dish   and threw a
             mitgebrachte Münze hinein. Das war lauter Geld   für die
             brought with coin   in.   That was *lauter* money for the
             Missionen.[4]
             missions.

             'We all walked to the alms dish and threw in a coin that we brought.

             That was a bunch of money for the missions.'

In a context where this interpretation is not easily available, that is, where the
context calls for say an overall amount of money, not the number of individual
coins, *lauter* cannot be used with nouns like *money*, as illustrated in (102) below
(contrasting with 101). Similarly, the contrasts in (103) illustrates a contrast with
respect to nominals specifying time intervals. While *viele Stunden* ('many hours')
can naturally specify durations of a continuous stretch of hours, *lauter* seems to
emphasize the number of individual hours, *lauter* in (103b) for instance, while
grammatical, is compatible only with an interpretation of the sentence that implies
that multiple meetings have taken place.

(102)   Diese Jacke kostet viel/*lauter Geld.
        This   jacket costs   much/*lauter* money.
        'This jacket is expensive.'

(103)   a.   Bis   wir da   sind, wird es sicher noch viele/*lauter Stunden
             Until we there are   will it surely still   many/*lauter* hours
             dauern.
             take

             'It will take many more hours to get there.'

        b.   Wir haben viele/lauter schöne Stunden miteinander   verbracht.
             We have   many/*lauter* nice   hours   with one another spent

             'We spent many nice hours with one another.'

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[4]Johannes Hösle. *Vor aller Zeit. Geschichte einer Kindheit*. C.H.Beck, 2000.

c. Sie hat dann den um viele/*lauter Jahre älteren Bruder geheiratet.
   She has then the by many/*lauter* years older brother married.
   'She went on to marry the brother who was older by many years.'

These data points may illustrate an important restriction on the complement nominals that *lauter* can combine with. As seen in the beginning of this chapter, *lauter* can combine with with NPs denoting properties of pluralities and substances. This seems to be a true semantic requirement of *lauter*, namely to combine with expressions that express properties of individuals in a domain with a lattice structure (see e.g. Chierchia, 1998), rather than say a syntactic requirement to combine with plurals. The data in the examples above seem to indicate that nouns like *Stunden* or *Jahre*, which are syntactically plural, are not plurals of the right kind if they are understood as continuous stretches of hours or years, but that they are of the right kind, when understood as plurals that combine individual hours or years into a plural individual (in the sense of Link, 1983). This observation connects nicely with the core of the denotation for *lauter* proposed by Regine Eckardt (see below).

Possibly because of their low frequency, *lauter* DPs have so far largely escaped detailed linguistic investigation. Musan (1995, p. 82) mentions in passing the observation that *lauter* seems to only receive a cardinal reading (in the sense of Milsark's weak reading), credited to Irene Heim. The second part of this chapter is dedicated to providing data showing that this generalization is correct and arguing that this observation is interesting and relevant in the current theoretical context of the debate about DP meanings.

A concrete proposal for the semantics of *lauter*—the only one that I am aware of—has been made in Eckardt (2006, ch. 7). Eckardt's position is interesting in that it treats *lauter* as an item in some ways intermediate between an adjective an a determiner. Eckardt argues, as I have assumed above, that in terms of its

syntactic behavior, *lauter* is a determiner. However, she points out that many of *lauter*'s semantic properties are somewhat unexpected under a perspective that treats determiners as elements of a uniform semantic class, in particular those that combine with properties to form generalized quantifiers (Barwise and Cooper, 1981). Semantically then, Eckardt argues, *lauter* reveals its adjectival heritage, as it is better understood as a modifier-like element than as a quantificational determiner in the sense of Barwise and Cooper. I will discuss some of the details of Eckardt's analysis in the next paragraphs.

Eckardt's larger investigation is mainly concerned with semantic reanalysis. From this perspective, she looks at a variety of individual phenomena and shows how detailed truth conditional semantic analysis and the study of historic change can mutually benefit each other. One of the case studies concerns determiner *lauter*. Eckardt presents a careful and thorough investigation of contemporary *lauter*'s etymology and argues that while contemporary *lauter* is a determiner, its peculiarity can be better understood if its adjectival history is taken into account. In particular, Eckardt argues that at its core, *lauter* makes a truth conditional contribution akin to that one may think an adjective with the meaning 'pure' makes, in that it distributes the property of the complement NP over all parts of a plural individual, e.g. as the function in (104) does.[5]

(104) $\lambda P.\lambda x.(\forall y)[y \leq x][P(y)]$

I believe that this core meaning is brought out in many of the basic uses of *lauter*. The intuitive interpretation of PPs with *lauter* DP complements like the ones in (105) below seems relatively clear. In each case, the *aus* PP modifies the head noun by specifying its substance directly along the lines we would expect given the

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[5]As customary, in (103), *P* is a property, *x* is an individual with a part structure in the sense of Link (1983). The observations discussed above are captures under the assumption that the $\leq$ operator is not defined for singular individuals.

denotation in (104).

(105)   a.   ein Chor aus   lauter Solisten
           a   choir from *lauter* soloists

           'a choir made up of soloists': $\lambda x.\ \text{choir}(x) \wedge [\forall y \leq x.\ \text{soloist}(y)]$

       b.   ein Ring aus   lauter Gold
           a   ring from *lauter* gold

           'a ring made of gold': $\lambda x.\ \text{ring}(x) \wedge [\forall y \leq x.\ \text{gold}(y)]$

While in the examples in (105) above there seems to be a clear intuitions that each member of the choir must be a soloist, and each part of the ring must be gold, the *lauter* DP can conjoin with other DPs, e.g. as in (106) below.

(106)   a.   ein Chor aus   lauter Bässen und ein paar Sopranen
           a   choir from *lauter* bassists and a   few sopranos

           'a choir made up of basses and a few sopranos'

       b.   ein Ring aus   lauter rostigen Drähten und ein paar Edelsteinen
           a   ring from *lauter* rusty   wires   and a   few gem stones

           'a ring made up of rusty wires and a few gem stones'

       c.   ein Theaterstück aus   lauter Überraschungen und ein paar
           a   theater play from *lauter* surprises   and a   few
           Geschmacklosigkeiten
           tastelessnesses

           'a theater play made up of surprises and a few tastelessnesses'

If *lauter* in fact predicates over the mereological parts of an individual, the presence of the conjunctions in (106) above indicate that *and* here may be a sum-forming operator rather than a boolean conjunction (Link, 1983; Hoeksema, 1988; Krifka, 1990). (106) then would collect the following pieces of information.

(107) $\lambda x.\ \text{choir}(x) \wedge x = y_1 \oplus y_2 \wedge [\forall z \leq y_1.\ \text{bassist}(z)] \wedge$

$$[|y_2| = \text{a few} \wedge \text{sopranos}(y_2)]$$

The proposed semantics intuitively also fits well with predicative cases like the ones in (108), and appositive uses as in (109).

(108)   a.   "Das sind ja   lauter Sozialdemokraten hier," stöhnte ein
            "This are   PRT *lauter* social democrats   here" sighs   a
            Kreuzberger ganz leise.
            Kreuzberger very quiet
            ' "Those people here are clearly all social democrats," a Kreuzberger

            sighs very quietly.'

       b.   Die Disneys müssen lauter dramatisch   ungeliebte Kinder
            The Disneys had to *lauter* dramatically unloved   children
            gewesen sein.
            been   be.
            'The Disneys must have all been dramatically unloved children.'

(109)   Schweineblut, Pistolen   und verstümmelte Attrappen, lauter
        pig blood,   hand guns and mutilated   props,   *lauter*
        Kinoeffekte
        movie effects

The meaning given in (104) is of course very weak, and does not make any significant contribution to the overall meaning in many cases. In order to capture the range of meanings seen above, Eckardt augments this 'core' meaning component. Since some of the examples seem to demand a certain amount or cardinality of objects, while others also seem to convey some notion of exhaustivity or universality (e.g. (94)), Eckardt argues for an ambiguity in the meaning of *lauter*. According to the proposal developed there, *lauter* has a 'many' reading, considered to be the dominant one, and a distinct 'only' reading. To capture these two readings, it is proposed that the meaning in (104) above is augmented with one of the two 'contextual specifications' in (110) below (from Eckardt, 2006, p. 222).

(110)   a.   'only': x is the *maximal* object described by the 'rest of the sentence'

       b.   'many': x is *attracting* the speakers attention by its sheer size

According to the proposal at hand, the sentence in (111) has two distinct reading, with the derivations as sketched below.

(111)   Susi aß lauter Birkenpilze.
        Susi ate *lauter* birch mushrooms
        'Susi ate only/many birch mushrooms.'

   a.   core meaning:

        ⟦lauter Birkenpilze⟧ $= \lambda x.\forall y[y \leq x][\text{birch mushroom}(y)]$

   b.   conjoining the core meaning with a contextual specification:

        ⟦lauter·$_{many'}$ Birkenpilze⟧ $=$

                $\lambda x.\ \text{strikingly large}(x) \wedge (\forall y[y \leq x][\text{birch mushroom}(y)])$

        ⟦lauter·$_{only'}$ Birkenpilze⟧ $=$

                $\lambda x.(\forall y[Q(y)][y \leq x]) \wedge (\forall y[y \leq x][\text{birch mushroom}(y)])$

        where Q is a relevant contextually given property, typically denoted by the rest of the sentence, here e.g. 'things Susi ate'. This condition requires that everything Susi ate is part of the plural individual that is 'birch mushrooms'.

   c.   existential closure at the VP level, adding verb and subject:

        ⟦[$_{CP}$ Susi [$_{TP}$ PAST [$_{VP}$ essen lauter$_{many}$ Birkenpilze]]]⟧ $=$

          $\exists x.\ \text{strikingly large}(x) \wedge (\forall y[y \leq x][\text{birch mushroom}(y)]) \wedge \text{ate}(s,x)$

        ⟦[$_{CP}$ Susi [$_{TP}$ PAST [$_{VP}$ essen lauter$_{only}$ Birkenpilze]]]⟧ $=$

          $\exists x.(\forall y[Q(y)][y \leq x]) \wedge (\forall y[y \leq x][\text{birch mushroom}(y)]) \wedge \text{ate}(s,x)$

I believe that the ambiguity proposal is peculiar both if envisioned as a kind of lexical ambiguity (the two contextual specifications being part of the lexical entry or entries of *lauter*) as well as if envisioned as a case of a single lexical meaning undergoing some form of pragmatic enrichment. Conceptualized as a lexical ambiguity, where the two meanings are simple homophones, an ambiguity as in (111) is surprising in that the two meanings share a common core, and are

very closely related in their overall meaning as well. In this and in other respects, the two meanings pattern in a way that Zwicky and Sadock (1975) term 'lack of specification', to distinguish it from genuine ambiguities. The examples in (112) below try to further bring out this difference. If *lauter* does indeed have two homophonous lexical entries, one with a meaning roughly paraphrasable by '(surprisingly) many', the other by 'nothing but' or 'only', then it should be possible to explicitly assert one meaning while denying the other. (112b) tries to illustrate this with a clear homonym pair, *Föhn*, which could either be a particular mountain wind, common, among other places, in the south of Germany, or a hair dryer. While (112b) may not be the most helpful way of expressing that one is prone to develop a head ache from one, but not the other, the sentence can be used to make this (contingent) statement. (112a) in contrast sounds puzzling and contradictory. (112c-d) show a similar contrast, and (112e-f) try to show cases where *lauter* is not immediately adjacent to negation.

(112)   a. #Da   sind lauter$_{'many'}$ Bonbons auf dem Tisch, aber nicht lauter$_{'only'}$
            There are *lauter*   candies on the table, but not   *lauter*
            Bonbons.
            candies.

        b. Aber es kann nicht nur an der warmen Luft liegen,   denn   ich
            But it can not just on the warm   air   depend, because I
            kriege zwar   Kopfschmerzen vom   Föhn$_{'wind'}$,   aber nicht
            get   indeed head aches   from the Foehn (wind), but not
            vom   Föhn$_{'hair-dryer'}$.
            from the hair-dryer
            'Though it can't just be the hot air, since I'm prone to getting a head

            ache from the foehn, but not from using a hair dryer.'

        c. #Carsten hat sich zwar   lauter$_{'many'}$ Hosen gekauft, aber nicht
            Carsten has SELF indeed *lauer*   pants bought, but not
            lauter$_{'only'}$ Hosen.
            lauter   pants

d. Carsten hat sich zwar   überraschend viele Hosen gekauft, aber
Carsten has SELF indeed surprisingly   many pants bought, but
nicht nur Hosen.
not   only pants
'Carsten did indeed buy surprisingly many pairs of pants, but he

didn't only buy pants.'

e. #Carsten hat ja   lauter$_{'many'}$ guten Ideen, aber du kannst
Carsten has as you know *lauter*   good ideas, but you can
nicht erwarten, dass er lauter$_{'only'}$ gute Ideen hat.
not   expect,   that he *lauter*   good ideas has.
intended: 'Carsten does, as you know, have many good ideas, but you

cannot expect that he has nothing but good idea.'

f. #Ich esse zwar   gerne lauter Reis, aber zwei Wochen lauter Reis zu
I   eat indeed gladly *lauter* rice, but two weeks   *lauter* rice to
essen ist sogar mir   zuviel.
eat   is even to me too much
intended: 'I indeed like to eat lots of rice, but to eat nothing but rice

for two weeks is too much even for me.'

These examples seem to point to an analysis according to which *lauter* is
underspecified with respect to whether the the object is question is the only
relevant one or not, rather than be ambiguous between a 'many' and an 'only'
denotation.

One might hope to find a common lexical core as in (104) and conceptualize
the additional specifications as a form of pragmatic enrichment. However the
burden for such a strategy would be to find a plausible pragmatic principle that
can derive just the proposed difference, and to show how it affects other lexical
items that it would be applicable to. I will not follow this strategy further at this
point but leave it as an open question whether such a move could be successful.

Before proposing that the weak meaning given in (104) might in fact be sufficient
to capture the meaning of *lauter*, I will discuss some of its further peculiarities.

3.3 *Lauter* has no pronominal form

Later in this chapter, I will argue for an account of *lauter* that builds on the core meaning proposed by Eckardt, but does away with the two contextual specifications. With this simplification, however, comes the loss of a proposed explanation for the so-called stranding prohibition that Eckardt derived from an incompatibility of the information-structural requirements of the discontinuous DP construction and the proposed contextual specifications. I believe that this loss can actually be turned into an advantage for two reasons. For one, I believe that the information-structural requirements are not as strict as assumed by Eckardt, as examples to be discussed later will show. Furthermore, I believe that an alternative explanation exists that places *lauter* into a larger class of items with certain inflectional properties which pattern alike. Before outlining this idea, I will introduce data illustrating the stranding prohibition.

3.3.1 The stranding prohibition

Many DPs in German can participate in a discontinuous DP construction commonly referred to as the split-topic construction, as illustrated in the example below (Fanselow, 1988; van Riemsdijk, 1989). In (113b), the NP complement of the determiner *keine* appears in a sentence-initial position (often referred to as the 'topic'), while the determiner appears in the sentence medial position (often referred to as the 'remnant').

(113)   a.   Ich habe keine Bücher mehr.
             I   have no   books anymore.
             'I don't have books anymore.'

b. Bücher habe ich keine mehr.
Books have I none anymore.
'As for books, I don't have any anymore.'

Curiously, *lauter* DPs cannot occur in discontinuous DP constructions, as (114) illustrates, even though the continuous DP construction in (115a) is completely acceptable, as is the discontinuous DP construction with DPs closely related in meaning, e.g. with *viele* in (115b).

(114) *Höhepunkte gab es lauter.

(115) a. Es gab lauter Höhepunkte.
It gave *lauter* highlights.
'There were many highlights.'

b. Höhepunkte gab es viele.
highlights gave it many.
'There were many highlights.'

Eckardt reports a suggestion credited to Joseph Bayer that there may be a morphosyntactic requirement for the stranded determiner to exhibit a particular inflectional marking and that the stranding prohibition for *lauter* may be due to the fact that *lauter* does not have the right, if any, inflectional paradigm. Eckardt rejects this suggestion based on data like (116) below, where other apparently non-inflecting determiners are acceptable in the remnant position.

(116) Steinpilze haben wir haufenweise / massig / ein paar gefunden.
Penny buns have we in heaps / in masses / a few found.
'Penny bun mushrooms, we found in heaps / in masses / a few.'

However, upon closer look, the morphosyntactic explanation might not be as hopeless as it seems given these examples. I believe that the stranding prohibition is in fact part of a larger pattern of restrictions on the structure of *lauter* DPs, including a restriction on *lauter* in partitive DPs which I will discuss below. A way

to descriptively capture both the stranding prohibition and the partitive constraint might be to say that what, for some morpho-syntactic reason, is required of determiners in both of these constructions, is that they appear in a form that one may call pronominal, or, put differently, that *lauter* cannot constitute a DP without overt material heading its complement NP. For many determiners, the pronominal form indicates itself through its morphological form, hence Bayer's suggestion. However, there seems to be a class of non-inflecting determiners, like *lauter* and the ones shown in (116) above. This class seems to split. While the determiners in (116) seem to have a (morphologically identical) entry in their paradigm that can fulfill the pronominal role, *lauter* does not. The generalization then would be that any context that triggers the pronominal morphology on inflecting determiners should block *lauter*.

The data below illustrates that while other cardinal determiners like *alle*, *viele* and numerals like *drei* can all be used without a following NP (in a supporting context), *lauter* cannot. Typically, questions can be answered by eliding all but the focussed material. (117) and (118) below show that in this context, many determiners, but not *lauter*, can constitute grammatical answers by themselves.

(117) a. Max, hast du Tomaten mitgebracht?
           Max, have you tomatoes brought
           'Max, did you bring tomatoes?'

       b. Ja, alle / viele / drei / (aber nur) grüne / *lauter.
           yes, all / many / three / (but only) green / lauter
           'Yes, all / many / three / (but only) green ones.'

(118) a. Hast du einen Keks gegessen?
           Have you a   cookie eaten?
           'Did you eat a cookie?'

b. Ja, zwei sogar / *lauter sogar.
   Yes, two even / *lauter* even
   'Yes, even two.'

Despite the lack of overt inflection, the determiner-like items cited by Eckardt (in (116) above) differ from *lauter* in that they are able to function pronominally, as (119) below shows.

(119) a. Habt ihr Steinpilze gefunden?
           Have you penny buns found?
           'Did you find any penny buns?'

       b. Ja, haufenweise / massig   / ein paar.
           Yes, heaps   / in masses / a   few

Similarly, in gapping constructions like (120) below, *lauter* cannot occur without an accompanying complement NP, unlike many other determiners.

(120) a. Ich habe diese / zwei Kekse gegessen und er jene   / drei.
           I   have these / two cookies eaten   and he those / three
           'I ate these / two cookies while he ate those / three.'

       b. *Ich habe ein paar Kekse gegessen und er lauter.
            I   have a   few cookies eaten   and he *lauter*

Again, the non-inflecting determiners in (116) differ.

(121) Ich habe nur ganz wenige Kekse   gegessen, aber er haufenweise.
       I   have only very few   cookies eaten,   but he heaps
       'I only ate very few cookies, but he ate heaps.'

The proposal that attributes the stranding prohibition to the lack of a pronominal form in *lauter*'s inflectional paradigm may seem unappealing at first. Before adding additional data to further motivate this proposal, I will discuss a different generalization, similar in spirit to the proposal developed by Eckardt, that is compatible with the data above as well, and may seem more appealing initially.[6]

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[6]Eckardt's proposal derives an incompatibility between the contextual enrichments of *lauter* discussed above and an assumption about the discourse function of the discontinuous DP construction.

In the course of the next sections, I will argue that this proposal cannot account for all relevant data.

As an alternative to the lack-of-pronominal-form proposal, the data above may be described from a semantic or information structural point of view. It appears that the constructions above seem to require focus marking on the relevant determiner elements. This is similar to what Eckardt claims about the so-called split topic construction in which we saw the stranding prohibition above. Thus, we could capture all these instances with a generalization that prohibits the occurrence of focus marking on *lauter*.[7]

Eckardt assumes that the discontinuous DP construction is an answer to a question of the form "Of what was there how much?", that is it assumes indeterminacy with respect to the content in both topic and remnant position. *Lauter* on its 'only' reading asserts an absence of alternatives and is therefore systematically incompatible with the requirements of the discontinuous DP construction. (I am not entirely sure how argument works for the 'many' reading.)

[7]It seems appealing to cast this requirement in a more semantic way. When I presented some of the above data, Manfred Krifka and Carla Umbach immediately pointed out that they could be described by stating that *lauter* DPs require narrow focus on the complement NP. For now, I would like to retain the simple descriptive generalization above. It seems to me that semantically, focus can be projected from the focus marked complement NP to larger constituents, i.e. semantically *lauter* DPs are compatible with broad focus. I believe the data in (i) illustrate this.

(i)   a.   Backt Sabine denn auch mal   einen Kuchen? Nein, sie backt nur lauter
                   Bakes Sabine PRT   also sometimes a   cake?   No,   she bakes only *lauter*
                   Kekse.
                   cookies.
                   'Would Sabine bake a cake too every now and then? No, she only bakes a whole bunch of cookies.'

      b.   Was   macht Sabine denn so den ganzen Tag? Naja, sie backt lauter Kekse.
                   What makes Sabine PRT   so the whole day? Well, she bakes *lauter* cookies.
                   'What's Sabine doing with this entire day? Well, she's baking a whole bunch of cookies.'

There also seem to be examples of *lauter* DPs that lack narrow focus on the complement NP, like (ii) below.

(ii)   Wenn sie den ganzen Tag Kekse   gebacken hat, hat sie natürlich den ganzen Abend
              If   she the whole day cookies baked   has, has she naturally the whole   evening
              lauter Kekse   gegessen.
              lauter cookies eaten.
              'If she had been baking cookies the entire day, then of course she had been eating *lauter* cookies the entire evening.'

What seems to be ruled out is contrastive focus marking on the determiner *lauter* itself.

As expected under this description of the facts, all of the examples become acceptable when some material is present in the complement NP, even if the head noun itself is not, as the examples below illustrate. In all of these examples, contrastive focus falls onto the complement NP.

(122)   Murmeln hat er lauter rote in der Tasche.
        Marbles   has he *lauter* red in the pocket.
        'He's got a whole lot of red marbles in his pocket.'

(123)   Ich habe ein paar grüne Kekse   gegessen und du lauter rote.
        I   have a   few green cookies eaten   and you *lauter* red
        'I ate a few green cookies, and you a whole bunch of red ones.'

(124)   Er [. . .] ist [. . .] wie ein nackter Mensch unter   lauter bekleideten.
        He   is   like a   naked   human among *lauter* dressed
        'He is like a naked man among a whole lot of dressed ones.'[8]

All of the data so far seem to be in line with both generalizations, the one in terms of focus requirements, and the one connected to a particular pronominal paradigm entry. I believe that a closer look at the discontinuous DP constructions discussed in the beginning of this section can point to data that may favor the latter of the two generalizations.

At first sight, the discontinuous DP construction appears to be derivationally related to a simple continuous DP, the lower parts of which appear in the initial position, while the structurally higher part of the DP stayed in the sentence-medial position. However, a look at a wider range of data shows that the facts are more complex than that. For the discussion at hand, it is particularly interesting that the material in the remnant position must in many cases exhibit inflectional marking that is not found in the continuous counterpart of the DP. (125) below illustrates that the remnant determiner *keine* exhibits the inflectional pattern of its forms

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[8]Milena Jesenská about Franz Kafka, in Alena Wagnerová (ed.) *'Ich hätte zu antworten tage- und nächtelang.' Die Briefe von Milena.* Fischer, Frankfurt am Main, 1998.

found in pronominal or NP ellipsis environments. (126) shows that under certain circumstances (for singular count complement NPs) determiner doubling takes place that cannot occur in the continuous DP construction.[9]

(125) a. Ein Schwimmbad   hat er sich noch keins/*kein gebaut.
           A   swimming pool has he SELF yet   none/ no   built.

       'As for swimming pools, he hasn't yet built one for himself.'

       b. Er hat sich noch *keins/kein Schwimmbad   gebaut.
           He has SELF yet   none/no   swimming pool built.

       'He hasn't yet built a swimming pool.'

       c. Er hat sich noch keins/*kein gebaut.
           He has SELF yet   none/ no   built.

       'He hasn't yet built one.'   [van Riemsdijk, 1989, p. 109]

(126) a. Einen Wagen hat er sich noch keinen leisten können.
           A   car   has he SELF yet   none   afford could

       'A car, he hasn't been able to afford yet.'

       b. *einen keinen Wagen, *keinen einen Wagen
           a   none   car,   none   a   car
                                                      [van Riemsdijk, 1989, p. 106]

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[9]The term 'pronominal form' that I have been using and the determiner doubling facts may suggest an analysis in terms of two independent DPs. While these analyses have been proposed, it is interesting to note that a tight connection between the two positions must exist, that may favor a derivational account. It is for instance possible to split DPs that contain an NPI that would only be licensed in the remnant positions, as illustrated by (ia and b).

(i)   a. Einen Deut   hat er sich keinen darum   geschert.
           A   copper coin has he SELF none   about that cared
           'He didn't care a straw about that.'
       b. Eine Menschenseele hat sich keine darum   gekümmert.
           A   human sole   has SELF none about that cared
           'Not a sole cared about it.'

Not all NPI cases sound equally acceptable to me, and I have no suggestions at this point as to what the contrast may depend on.

(ii)   ?*Eine müde Mark kann er damit   aber keine verdienen.
        A   tired mark can he with that but none earn.
        intended: 'He can't earn a single cent / any money at all with that.'

The possibility of determiner doubling allows for a case that seems to me to be less compatible with an account that would aim to cash out the generalization relying on focus. The example in (127) shows that while *welche* can be used as pronominal form with the meaning 'some', this form cannot be used as a determiner with the same meaning.

(127)   a.   Unbeschädigte Exemplare habe ich kaum   noch welche.
             Undamaged   copies   have I   hardly still any.
             'As for undamaged copies, I hardly have any left.'

        b.   *Ich habe kaum   noch welche unbeschädigte(n) Exemplare.
             I   have hardly still   any   undamaged   copies

What is interesting about (127a) with respect to the two accounts under consideration is that (127a) does not exhibit any phonological indication that *welche* bears focus of any variety. In fact, to my ears placing an accent on *welche* sounds fairly unnatural.

(128)   *Unbeschädigte Exemplare habe ich kaum noch WELche.

It seems to be the default case that in neutral environments the determiner in remnant position receives some amount of stress, however, as the examples involving *welche* show, this cannot be a necessary requirement of the construction.

(129)   a.   HÖhepunkte gab es VIEle / KAUM / EInige.
             highlights   gave it many / rare   / some
             'There were many/few/some highlights.'

        b.   HÖhepunkte GAB es welche.

        c.   *HÖhepunkte gab es WELche.

Even though (129b) shows that the remnant position can be unstressed in the case of *welche* where the main verb receives stress, neither stress pattern is available for *lauter* in remnant position.

(130)   a. *HÖhepunkte GAB es lauter.

        b. *HÖhepunkte gab es LAUter.

If the judgments above are correct, they indicates that the remnant position of a discontinuous DP construction is not intrinsically connected to the contrastive focus structure that is supposed to explain the inability of *lauter* to be stranded in the remnant position, an observation problematic for the account proposed in Eckardt (2006) or the descriptive generalization discussed above.

The data presented in the section above thus show that there is independent reason to believe that determiners remaining on their own in the remnant position have to appear in a form morphologically related to their pronominal use. Since *lauter* does not seem to have such a form, this requirement could be behind the stranding prohibition. In the next section, I will present data illustrating the inability of *lauter* to appear in partitive constructions. These data strengthen the case for the generalization that *lauter* is unable to occur in places where other determiners appear in their pronominal forms.

3.3.2   The partitive restriction

In the following section I will discuss a further restriction on determiner *lauter*, namely the fact that it cannot head partitive DPs, as illustrated by the contrast in (131) below.[10]

(131)   a. Susanne hat viele / lauter Plätzchen gegessen.
            Susanne has many / *lauter* cookies   eaten.
            'Susanne ate many / a whole bunch of cookies.'

_____

[10]The observation that *lauter* cannot appear in partitive construction was, to my knowledge, first reported in Musan (1995, p. 82)

  b. Susanne hat viele / *lauter von den Plätzchen gegessen.
    Susanne has many / *lauter* of the cookies eaten.

The partitive restriction turns out to be a second interesting test case for the two proposals compared above, as there seems to be no obvious requirement for focus marking on the head determiner of a partitive construction. The pronominal form requirement on the other hand fares better. We can observe that partitive determiners again appear with the pronominal inflection.

(132) Susanne hat keins/*kein von den Plätzchen gegessen.
    Susanne has none/no of the cookies eaten.
    'Susanne ate none of the cookies.'

Similarly, the determiner *manche* ('some'), which has an alternate version *manch* can only occur in its inflected form.

(133) Susanne hat manche/*manch von den Plätzchen gegessen.
    Susanne has some   of the cookies eaten.
    'Susanne ate some of the cookies.'

Setting aside adverbial modifiers

There appears to be an exception to the generalization with respect to the determiner *viele*. As the example in (134) shows, in addition to the inflected form, *viele* in (134a), an apparently uninflected form, *viel*, is grammatical as well, as (134b) illustrates. Upon closer inspection, however, we can see that there is a subtle meaning difference between (134a) and (134b). While the inflected form has the partitive meaning we expect ('many of the cookies'), the uninflected form cannot have this meaning. Instead *viel* here is an adverbial counterpart of the adjective modifying the entire VP. What (134b) roughly means is that of the cookie-eating, Susanne did much. (134a) for instance conveys a sense of telicity, that is it requires that many of the cookies are consumed in their entirety. (134b) on the other hand

is compatible with a scenario where Susanne ate some amount of every cookie, but none completely.

(134) a. Susanne hat viele von den Plätzchen gegessen.
           Susanne has many of   the cookies   eaten.
           'Susanne ate many of the cookies.'

       b. Susanne hat viel   von den Plätzchen gegessen.
           Susanne has much/often of   the cookies   eaten.
           'Susanne ate of the cookies a lot'

The examples in (134) add a cautionary note to the discontinuous DP discussion as well. Many adjectives have adverbial counterparts, and since there is not always a visible delineation between the remnant determiner position and a preceding adverbial position, it is not always clear from the surface form alone whether the apparent remnant element is a determiner or an VP adjoined adverb. Corresponding to the observations about (134), when the uninflected *viel* appears in the discontinuous DP construction, only the adverbial meaning is available, as illustrated in (135).

(135) Schwimmbäder hat er viel   gebaut.
       swimming pools has he much build.
       'He did a lot of swimming pool construction.'

Pseudo-partitives

Selkirk (1977) discusses the phrase structure of a construction at first sight closely related to the partitive construction, but with different properties upon closer inspection. While the partitive construction allows for extraction of the first DP, as illustrated in (136), the pseudo-partitive does not, as (137) shows.

(136) a. A lot of the leftover turkey has been eaten.

       b. A lot has been eaten of the leftover turkey.

(137) a. A lot of leftover turkey has been eaten.

   b. *A lot has been eaten of leftover turkey.   [Selkirk, 1977, p. 304]

Selkirk's observations are applicable to German as well, where a similar pattern can be seen, as illustrated in (138) and (139).

(138) a. Es ist eine ganze Kiste von den Keksen weggegangen.
           It is a   whole box of   the cookies used up.
           'A whole box of the cookies has been used up.'

   b. Eine ganze Kiste ist von den Keksen weggegangen.
       A   whole box is of   the cookies used up

(139) a. Es ist eine ganze Kiste Kekse   weggegangen.
           It is a   whole box   cookies used up
           'A whole box of cookies was used up.'

   b. *Eine ganze Kiste ist Kekse   weggegangen.
       A   whole box is cookies used up

The extraction differences between the partitive and the pseudo-partitive seems to suggest that in the pseudo-partitive, there is a closer connection between the partitive head phrase, here 'a lot' and 'a whole box', and its complement phrase. That is, while in the pseudo-partitive construction the head is more integrated, in the partitive construction it is more independent.

We might expect, based on this description and the partitive restriction for *lauter* discussed in the preceding section, that *lauter* may be able to satisfy its adjacency requirement in the pseudo-partitive construction. This prediction is borne out, though with a caveat. There is a clear difference in grammaticality between the examples in (140a) and (140b). Several informants find (140b) unobjectionable. While for me the example in (140b) is still not quite perfect, it is markedly better than its partitive counterpart in (140a).

(140) a. *Heute sind lauter von den Keksen verkauft worden.
           Today are   *lauter* of   the cookies sold   been

       b. ?Heute sind lauter Kisten Kekse   verkauft worden.
           Today are   *lauter* boxes cookies sold   been
           'Today, a whole lot of boxes of cookies were sold.'

A few relevant examples, like (141) below, can be found online.

(141) Manch einer glaubt   auch an ein Paradis [...], das vor lauter
       Some   of one believes also in a   paradise   that with *lauter*
       Flaschen Wein und nackten Jungfrauen nur so wimmelt.
       bottles   wine and naked   virgins   only so teeming is
       'Many a person also believes in a paradise, that is just teeming with a

       whole lot of bottles of wine and naked virgins.'[11]

   If there is in fact a slight bias against *lauter* as the head of a measure construction, this is not explained by proposal under consideration. However, a look at the proposed semantics may offer an insight. According to the core meaning proposed by Eckardt, *lauter* is at its core not a cardinality predicate, but one that refers to the part structure of a plural individual. If there is a (plausible) requirement for the relevant position of a measure phrase to host a cardinal expression, the processor would have to come up with some way of shifting *lauter* into a meaning of the relevant kind. This may be behind the perceived difficulty with *lauter* in pseudo-partitive constructions.[12]

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[11]Thanks to Angelika Kratzer for this example (among, of course, many others in this thesis).
[12]Some speakers perceive an interesting contrast between the examples in (142) and the following example.

(i)   Er hat zwei / *lauter Stück Kuchen gegessen.
       He has two / *lauter* pieces cake   eaten
       'He ate two pieces of cake.'

These examples may be connected to the contrast discussed with respect to time units in (103) above. While a closer investigation of this pattern may shed light on the denotation of the complement NP, it is not clear to me at the moment what is responsible for the contrasts in each case.

(142) Er hat zwei / ?lauter Flaschen Wein getrunken.
       He has two / *lauter* bottles   wine drunk.
       'He drank two bottles of wine.'

(143) Er hat viele / ?lauter Laibe Brot   gekauft.
       He has many / *lauter* loafs bread bought
       'He ate many loafs of bread.'

3.3.3   What unifies the environments?

The previous part of this chapter has introduced the German determiner *lauter*
and discussed some of its properties, in particular the stranding prohibition
and the partitive restriction. Examples with the determiner *welche* have been
introduced that appear problematic for an account requiring a contrastive focus
interpretation to account for the ungrammaticality of *lauter* in the discontinuous
DP construction. In addition, I have argued that the data from the discontinuous
DP construction should be seen as part of a larger pattern of environments where
inflecting determiners appear in their particular 'pronominal' form. *Lauter* appears
to be banned from all of these environments. In this spirit, I have suggested that
an account along the lines suggested by Bayer might be appealing and that the
uninflected forms initially discussed as potential counterexamples do in fact fit the
pattern. I have then presented data illustrating the inability of *lauter* to appear in
partitive DPs and suggested that they should be thought of along the same lines
as the cases involving the discontinuous DP construction. What remains to be
explained is what theoretical property unifies all of these environments. I will not
be able to do justice to this question, but briefly mention which considerations
could be taken into account here.

There is a clear intuition that all of the environments under consideration
share a property, namely that no overt material heads the sister constituent to
the determiner in question. In all environments discussed in the section on the

stranding prohibition, the determiner constitutes the entire overt material its DP. In the partitive construction discussed in this section, the overt material in the DP consists of the determiner and a constituent in the shape of a PP or a genitive marked DP. In many accounts to the structure of partitive constructions, it has been assumed that these are part of an NP complement to the first determiner with a potentially empty or unpronounced head position, following e.g. Jackendoff, 1977.

Jackendoff's proposal already contains discussion that determiners differ with respect to whether they can appear without an adjacent overt NP, as illustrated by the examples in (144). For Jackendoff, the forms in (144) for instance are determiners with an inflectional ending that is obligatorily attached before PRO.

(144)   a.   None/*No of the men

  b.   Every one of the men   [Jackendoff, 1977, p. 114]

(145)   a.   John wanted to read the dossiers of famous linguists but he succeeded in reading none/*no.

  b.   John wanted to read the dossiers of famous linguists and he succeeded in reading every one.   [Jackendoff, 1977, p. 115]

What the examples in (145) also show is that determiners can appear in different forms depending on whether the precede an overt NP or not (e.g. no vs. none).

While alluding to the lack of phonological form of the sister constituent provides an intuitive characterization, it remains to be explained what lies behind this intuition on a more abstract level, that is, which theoretical property the environments in question share. It is by no means clear that theoretical accounts given for the different environments will come to the same answer in all cases. For a discussion of some of the difficulties, and the theoretical options to explore, see Johnson (2001), in particular the first section.

This section showed that neither the stranding prohibition nor the partitive restriction may provide evidence for the semantics of *lauter*. In turn though, the section also showed that neither of the semantic 'augmentations' assumed by Eckardt may be needed in accounting for the patterns observed above. Below I will turn to the interpretation of *lauter* DPs in the context of the range of DP interpretations in general. While the previous section could be seen as investigating the internal structure of *lauter* DPs, below I will show that the distribution of these DPs is peculiar and interesting as well, and informative with respect to their meaning.

3.4   DP interpretation and reference

While the previous sections show that some restrictions on the structure of *lauter* DPs could plausibly be explained by syntactic or morpho-syntactic constraints connected to a phonologically empty complement NP, in this section I will present further data that show that well-formed *lauter* DPs show interesting restrictions on their distribution that cannot be accounted for under the generalization made above. To situate the observations about the interpretation and distribution of *lauter* DPs, I will first introduce some background on the interpretation of DPs in general.

In the semantic frameworks assumed in much research on the meaning of natural language expressions, individual entities play a crucial role. I take individual entities to be aspects of language users' experience that lend themselves to being individuated as, in some way, basic objects. In many cases, this kind of experience is taken to reflect mind-external reality. If a name for instance is said to denote its referent, that referent is taken to be a part of an experience independent reality. We are acquainted with the bearer of the name and use the name, by convention, to refer to that individual. However, we also talk about objects that we do not have

direct acquaintance with, but what Russell calls "knowledge about."

> "The distinction between *acquaintance* and *knowledge about* is the distinction between the things we have presentations of, and the things we only reach by means of denoting phrases. It often happens that we know that a certain phrase denotes unambiguously, although we have no acquaintance with what it denotes; this occurs in the above case of the centre of mass. In perception we have acquaintance with the objects of perception, and in thought we have acquaintance with objects of a more abstract logical character; but we do not necessarily have acquaintance with the objects denoted by phrases composed of words with whose meanings we are acquainted. To take a very important instance: There seems no reason to believe that we are ever acquainted with other people's minds, seeing that these are not directly perceived; hence what we know about them is obtained through denoting. All thinking has to start from acquaintance; but it succeeds in thinking about many things with which we have no acquaintance."   [Russell, 1905]

When considering names, the category of words most commonly associated with reference to objects, we may think that there are several language independent constraints that aid our cognitive ability to perceive the simple objects we may refer to (e.g. principles like cohesion, boundedness, or the lack affect without contact; Spelke, 1990 a.o.). However, the ability to name things is not limited to simple objects, but also includes complex objects like groups of individuals (*Germans, The Beatles, L.T.F. Gamut*), objects with only some of their attributes (*Clark Kent* and *Superman*, *Charles Dodgson* and *Lewis Carroll*, *Hesperus* and *Phosphorus*), events (*World War II*), mathematical entities (π), places, imaginary objects and many other things. With the help of more complex noun phrases, concepts of seemingly unlimited complexity can be formed, with objects of that particular kind in their denotation, including many concepts for which it is hard to determine what particular aspects of reality the objects in their denotation may correspond to. Yet to establish and understand a connection between the internal representations and an external reality is one of the central goals of a complete description of the abilities of a semantically competent language user.

"My proposals regarding the nature of meanings will not conform to the expectations of those linguists who conceive of semantic interpretation as the assignment to sentences and their constituents of compounds of 'semantic markers' or the like. (Katz and Postal, 1964, for instance.) Semantic markers are *symbols*: items in the vocabulary of an artificial language we may call *Semantic Markerese*. Semantic interpretation by means of them amounts merely to a translation algorithm from the object language to the auxiliary language Markerese. But we can know the Markerese translation of an English sentence without knowing the first thing about the meaning of the English sentence: namely, the conditions under which it would be true. Semantics with no treatment of truth conditions is not semantics. Translation into Markerese is at best a substitute for real semantics, relying either on our tacit competence (at some future date) as speakers of Markerese or on our ability to do real semantics at least for the one language Markerese. Translation into Latin might serve as well, except insofar as the designers of Markerese may choose to build into it useful features - freedom from ambiguity, grammar based on symbolic logic - that might make it easier to do real semantics for Markerese than for Latin."   [Lewis, 1970, p. 18f.]

In many theories that aim to establish the connection between mind-internal representations and truth with respect to a mind-external reality, reference to objects plays an important part, be it by assuming that expressions of language can be used to refer to objects or to quantify over them directly, or by positing an intermediate model-theoretic representation with domains populated by representants of the external objects.

Yet the discussion above should have illustrated a small part of the complexity hidden underneath the notion "object" or "individual entity" in the sense used in much of the semantic literature. Language seems to operate on a fairly high level of abstraction. Noam Chomsky's remark that for all we know the grammar of English appears to treat the fly in the bottle as it does the flaw in the argument can be read this way (see e.g. 'Reply to Ludlow' in Antony and Hornstein, 2008).

I will not be able to do justice to the underlying complexity of the notion of an individual entity in the discussion below, and I will set this complexity aside for most of this chapter and take it for granted for the purposes at hand that a mental

system exists that allows for a mapping from names of concepts used in particular circumstances to the individual entities falling under that concept, whatever they may be. With this in mind, I will assume that reference is an important part in the semantics of DPs, directly, as in the case of names, or possibly more indirectly, as might be the case with descriptive DP, that indicates the speaker's belief in the existence of some individual object that meets the descriptive content or quantificational DPs require the existence of a certain number or proportion of individual objects to satisfy certain conditions.

Below I will take a look at some of the various interpretations of DPs. I will argue that not all of them are referential or quantificational, but that there are genuinely predicational DPs as well. This has been argued, though not in all cases uncontroversially, for DPs in so called predicative positions. In those cases it is generally assumed that the environment of a DP brings about it predicational meaning (e.g. via a type-shift operation such as Partee's BE type shift, discussed below). In contrast, I will argue that *lauter* DPs appear to be predicational in their basic form, and explore what may happen when they are put in a position where an individual object meaning is expected, e.g. in most argument positions of verbs, under the assumption that verbs (in some cases in conjunction with further functional elements) are relational, and that they express relations between individual objects.[13]

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[13]I will assume here that for most, if not all verbs at least one of these objects is an event, as argued for by Davidson (1967) and much subsequent literature, or a state.

3.5   On the range of interpretations of DPs

3.5.1   Existential quantification and merely cardinal interpretations

The previous brief introduction alluded to the importance of the notion of reference to individuals in much of the literature on the interpretation of DPs. There are various ways in which a referential connection could be established. While names are often taken to offer a clear case for a kind of DP that is interpreted as referring directly, the case is less clear for DPs with richer descriptive content. Definite DPs, for instance, under the Russellian approach are treated as quantificational expressions that assert existence and uniqueness (Russell, 1905, 1919). In fact, Russell treats all descriptive DPs as quantificational, setting them apart from names.

> "I met Jones" and "I met a man" would count traditionally as propositions of the same form, but in actual fact they are of quite different forms: the first names an actual person, Jones; while the second involves a propositional function, and becomes, when made explicit: "The function 'I met x and x is human' is sometimes true."
>
> [Russell, 1919, p. 168]

Or, similarly,

> "Suppose now we wish to interpret the proposition, "I met a man". If this is true, I met some definite man; but that is not what I affirm. What I affirm is, according to the theory I advocate: –
> " 'I met x, and x is human' is not always false"." [Russell, 1905, p. 481]

Russell's approach to definite DPs overcomes a number of difficulties associated with a directly referential semantics (for a discussion, see for instance Heim, 1991). The debate about the referential or quantificational nature of definite DPs has been long-standing in the philosophical literature. A prominent competitor to

the Russellian account, Strawson (1950) claims that existence and uniqueness are a presupposition of definite DPs rather than part of the at-issue content of the proposition. A related debate exists for indefinite DPs, though it originated later, with more detailed linguistic investigation, in the work of Hans Kamp and Irene Heim. Heim and Kamp's works fundamentally depart from the Russellian view by construing indefinite DPs not as inherently quantificational, but as expressions that introduce referential markers within some semantic representation; referential indices or file cards in Heim (1982)[14] or elements in the universe of a discourse representation (DR) in Kamp (1981).[15]

> Indefinite descriptions are, on the account given here, referential terms, not existential quantifiers. [Kamp, 1981, p. 281]

By detaching existential quantification from the contribution of the indefinite, Kamp and Heim can account for some of the previously unexplained properties of indefinites, most famously their variable quantificational force and anaphoric availability in so-called donkey sentences (after an example in Geach, 1962). To account for the seemingly default existential meaning of indefinites, both Kamp and Heim's accounts contain provisions that guarantee a way to arrive at these interpretations without tying them directly to the lexical item. In Kamp's account, the constructed DRs have to be embeddable into a model-theoretic representation, and doing so requires that unbound elements in the universe of the DR can be mapped to suitable model-theoretic objects. In (the 'static' part of) Heim's account (chapter 2), a default existential closure operation applies to the logical representation, e.g. to the scope of tripartite representations of quantificational operators and at a higher "text" level.

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[14]Though see the reservations against the use of the term *referential* discussed in Heim's work.

[15]For definites, Kronfeld (1990) has argued that definites should be thought of as involving two acts of referring, one to a mental representation which then, in turn, refers to an object. See also Kripke's distinction between speaker's reference and semantic reference (as discussed e.g. in Heim, 1982, 1991).

While accounts in the spirit of Russell differ significantly from those in the spirit of Kamp and Heim, as discussed above, there are also some basic commonalities between the two. In both accounts, a merely existential interpretation is at the heart of indefinite DPs. For Russell's account, this is the only option. For the accounts proposed by Heim and Kamp, it is the default, though these account opened the door to a considerable amount of investigation into the environments and conditions that lead to not merely existential interpretation of indefinite DPs. Both accounts also concur on treating indefinite DPs as ones that introduce individual objects, since in simple, unembedded cases, even the Russellian approach establishes a referential connection, only it does so rather indirectly. If it is asserted that a particular (in the case of definite DPs even unique) individual exists, the proposition as a whole can only be true if there is an individual that would be the referent of the DP under a referential approach. Hence both accounts rely on the notion of individuals, either indirectly, by quantifying over them, or by introducing a representational correspondent directly.

While much of the literature has focussed on the variable interpretation of indefinites, data discussed more recently shows that the interpretation of sentences containing definite DPs may show some of the same effects (see in particular Jäger, 1996, 2001b).

Below, I will summarize some of the literature that shows that a number of different interpretations of indefinite DPs exist and how these differ from the merely existential or cardinal interpretation often taken to be the basic interpretation of these DPs. Following work by Gary Milsark (Milsark, 1974, 1977), the former interpretation is often called a "weak" interpretation, and DPs of various morphological shapes that can receive this interpretation are called weak DPs. Not merely cardinal interpretations on the other hand are then often referred to as "strong."

3.5.2 Milsark's strong and weak distinction

In his 1974 dissertation, Existential Sentences in English, and subsequent work, Gary Milsark sets out to explain some peculiarities of English *there-be* or existential sentences like the ones in (146) and (147) below.

(146)   a.   There is a tiger at the door.

        b.   There are monkeys in your yard.

        c.   There are many ways to fail.

(147)   a.   There was a man drunk.

        b.   There were doctors available.

        c.   There are many people naked.

Milsark discusses two restrictions on the existential construction, the so-called definiteness and predicate restrictions. The former, illustrated by the contrast between the examples in (146) and the ones in (148) below, describes the observation that only certain DPs can occur in the post-auxiliary (or "pivot") position of the existential construction. Prominently, definite DPs seem to be excluded from this class.[16]

(148)   a.   *There is the tiger at the door.

        b.   *There are all of the monkeys in your yard.

        c.   *There is each way to fail.

The latter, illustrated by the contrast between the examples in (147) and (149), describes a restriction on the class of predicates that can occur in the so-called "coda" position of existential sentences.

(149)   a.   *There was a man tall.

        b.   *There were doctors intelligent.

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[16]See Comorovski (1995) a.o. concerning the acceptability of definite DPs in certain cases.

    c.   *There are many people lawyers.

Both of these restrictions seem peculiar under a view that assumes existential sentences to be transformationally derived from a larger class of regular argument-predicate structures like the corresponding declarative sentences in (150) and (151) below, where these restrictions seem to be absent.

(150)   a.   A tiger is at the door.

         b.   The tiger is at the door.

         c.   Monkeys are in your yard.

         d.   All of the monkeys are in your yard.

(151)   a.   A man was drunk.

         b.   One man was tall.

         c.   Doctors were available.

         d.   Doctors are intelligent.

         e.   Many people are lawyers.

         f.   Many people were naked.

Milsark classifies those DPs that can occur in the post-auxiliary (or "pivot") position of the existential construction as "weak" DPs and those that can't as "strong", as summarized in Table 3.1 on page 109. He describes the contrast as one between determiners that express cardinality (the weak determiners) and ones that are truly quantificational (the strong determiners), where a notion of presuppositionality plays a defining role in which determiners are classified as quantificational in the following way. A determiner is said to be quantificational if it picks a certain amount of members from a *given* set, as opposed to the cardinality predicates, which merely demand the existence of a number of individuals.[17]

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[17]Barwise and Cooper (1981) give a connected definition of the strong/weak distinction in set theoretic terms, as in (i).

Barwise and Cooper (1981, p. 190) discuss some properties of cardinal determiners, namely that they are existential in the sense of (152a), intersective, (152b), and symmetric, (152c).[18]

(152) a. $X \in [\![D]\!](A)$ iff $E \in [\![D]\!](A \cap X)$[19]

     b. $X \in [\![D]\!](A)$ iff $X \in [\![D]\!](A \cap X)$

     c. $X \in [\![D]\!](A)$ iff $A \in [\![D]\!](X)$

To account for the observations that only certain predicates (those labeled by Milsark as 'state-descriptives') can occur in the code of the existential construction, but not others (those labeled 'properties'), Milsark proposed a constraint on argument-predicate structures stating that subjects of property-predicates must always be strong DPs, as illustrated by the data in (153).

(153) a. A radio listener is intelligent.   (only generic or specific)

     b. *Sm radio listeners are intelligent.

     c. Some radio listeners are intelligent   (only partitive: some vs. others)

At first sight, this generalization predicts weak and strong DPs in English to be in complementary distribution. While this prediction is not borne out by the distribution of DPs of the morphological forms corresponding to weak DPs, Milsark points out that, upon closer inspection, his account receives support from the apparent counterexamples. When apparently weak determiners surface as

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(i) a. D is positive strong iff whenever $[\![D(NP)]\!]$ is defined, then $[\![NP]\!] \in [\![D(NP)]\!]$.

    b. D is negative strong iff whenever $[\![D(NP)]\!]$ is defined, then $[\![NP]\!] \notin [\![D(NP)]\!]$.

    c. D is weak iff it is not strong.

[18]In all cases, $[\![D]\!](A)$ is a generalized quantifier, that is, a set of sets or a characteristic function thereof.

[19]Barwise and Cooper's semantic representations are evaluated with respect to a formal model. E is the set of individuals in the model. Thus this intended sense of "existential" here is not one that makes a metaphysical claim, but rather one that indicates existence in the relevant domain in the model. Barwise and Cooper say that "we might assume that the model includes some things which do not actually exist. The set of things that exist is a subset of the set of things that there are (in the model)."

Table 3.1: Classification of determiners from Milsark (1977, p. 8)

WEAK	STRONG
	"definites"
a	*the*
this N (non-demonstrative)	demonstratives
	pronouns
	possessive DET's
	universals
	all
	every
	each
	any when not polarity item of *some*
∅ plural and mass determiner with nonuniversal reading	∅ DET with universal reading
	most
sm[a] ('existential' reading)	*some* ('contrastive/partitive' reading)
mny ('existential' reading)	*many* ('contrastive/partitive' reading)
number determiners	
and potentially others, e.g. *lots of*, *few*	

[a] Milsark adopts the notation *sm* for the weak form of the article 'some' from Postal (1966) who writes

> *sm* is the way I shall write here and below the form which occurs in contexts as *I would like ___ applesauce*, a form entirely different from that occurring in contexts like ___ *maniac is out*. [p. 199]

mny is used analogously.
Since I don't want to follow the suggestion that *some* and *sm* (and similarly *many* and *mny*) are different lexical items, I will only use *sm* and *mny* in this section, in the context of discussing Milsark's theory.

arguments of property-predicates, they obligatorily receive a strong interpretation, while when they appear in the there-be construction only a weak interpretation is available, as illustrated in (154) and (155) below. Those DPs initially classified as weak in fact seem to display a systematic ambiguity between weak and strong readings.

(154) a. There are *sm/mny* people in the bedroom.   (merely existential)

 b. There are short people in the bedroom.   (_____ '' _____)

 c. *There are some/many (of the) people in the bedroom.

d. Some/Many (of the) people are in the bedroom.

(155) a. *Sm/Mny* people are intelligent.

    b. Short people are intelligent.   (characterizing)

    c. Some/Many (of the) people are intelligent.

While Milsark's work shows that a number of weak DPs (at least those headed by *many*, *few* and numerals) display a systematic ambiguity between weak and strong readings, it does not address the question how these two interpretations are related to each other or how the two meanings of the determiners should be modelled formally. While there is a range of not-merely-cardinal readings, Milsark's work mostly focusses on the distinction between cardinal and partitive readings and does not address whether other differences in interpretation should be thought of along the same lines. For bare plural DPs, for instance, which display both generalizing and existential interpretations, Milsark lists two separate entries. Similar questions may arise with respect to so-called specific readings. I will discuss evidence for the different interpretations and approaches to these questions in the following sections. To do so, I will take stock of the range of interpretations that DPs that correspond in their morphological shape to those DPs that can appear in the pivot position of existential sentences in an unmarked context can receive. That is, I take the ability to appear in a there-be sentence as a test for identifying DPs with a merely cardinal reading and see what other readings are available for DPs of the same shape, regardless, at least initially, of considerations as to whether there might be multiple underlying lexical entry for the determiners in question.

3.5.3 Partitive or proportional interpretations

A main empirical contribution of Milsark's work is the investigation of a reading displayed by many (indefinite) determiners that is different, though sometimes only slightly, from the merely cardinal one discussed in the beginning of this chapter. Milsark takes this interpretation of determiners like *some* to convey information about some members of a predetermined set (contrasting with other members of that set), while on the weak interpretation no assumption about the remaining members of the set can be made. He discusses the contrast between examples like (156a) and (156b) below as follows.

(156) a. Some people are jackasses.

  b. There are some people in the bedroom.

> It seems absolutely clear that the only sense of *some* which can be understood felicitously in [(156a)] is the second "some" sense. The sentence means only that some members of the human race, as opposed, presumably, to others, are jackasses. [...] By contrast, [(156b)] says nothing more than that the bedroom contains an unspecified number of object meeting the description "people".   [Milsark, 1977, p. 19f.]

While Milsark takes the difference in reading as a fact, he acknowledges that "distinguishing these readings in specific cases can be a devilishly subtle business." In the cases above, I think one observable differences is that the "not-all" or "some-not" implication of (156a) can be cancelled, while such a move seems rather odd for (156b), as indicated in (157) below.

(157) a. Some people are jackasses, in fact all are.

  b. #There are some people in the bathroom, in fact all are.

Partee (1989), in carefully evaluating Milsark's claim, searches for cases where clearer intuitions about the two readings of determiners like *many* and *few* could be obtained. In this context, she discusses an observation credited to Alison Huettner,

related to the expectation that given a merely cardinal interpretation of *few*, the assertion that there are merely few objects that have both the restricting NP's and the VP's property should be compatible with a scenario in which all of the objects in the restricting NP's denotation are in the extension of the predicated property (as long as there are only few such objects overall). This prediction seems borne out, as (158) illustrates. For a partitive interpretation on the other hand, the existence of some objects that do not satisfy the predicate is required, as illustrated in (159).

(158)   a.   Few egg-laying mammals turned up in our survey, perhaps because there are few.

   b.   #Few egg-laying mammals suckle their young, perhaps because there are few.   [Partee, 1989]

(159)   Few of the men slept. #In fact all of them did.

Similarly, the contrast in (160) below seems to indicate that while *many* with a partitive interpretation can be understood as "many of the few", thus not requiring a large cardinality overall, *many* with a merely cardinal interpretation, as forced, for instance, by the *there-be* context in (160a), cannot be interpreted that way.

(160)   a. ?*Though there were only few people on board, there were many standing on the deck.

   b.   Though there were only few people on board, many were standing on the deck.

Similarly, while A in (161) denies that there are many wild tigers (cardinal), B may agree and yet observe that many wild tigers (proportional) are endangered. Of course, the view that Bs utterance contains cardinal *many* may be salvaged by arguing that A's utterance adjusts the context to a new standard as to what counts

as 'many' with respect to wild tigers (see also Partee, 1989). The advantage of Huettner's examples is that this strategy is not available in any obvious way.

(161)   A: You know, there are only very few tigers left in the wild.

B: Yes, and to make matters worse, many wild tigers could die in the next few years due to human encroachment.

So far there seem to be a number of determiners that can, at least in some environments, receive a partitive interpretation as discussed above, among others *some*, *many*, *few* and the numerals. The question arises whether all weak DPs are subject to this ambiguity. If the examples in (162) below are representative, it seems that neither the paradigm case of an indefinite determiner, unstressed *a*, not bare plurals have partitive readings. The same seems to be true for the potentially indefinite colloquial unstressed *this*.

(162)   a.   A bird appeared on the horizon.

b.   Birds appeared on the horizon. (nothing seems to be implied about other birds)

c.   Yesterday this crazy BIRd appeared on the horizon.

Milsark indicates that stress on the determiner often leads to a partitive interpretation, though not necessarily so.[20] However it does seem that the ability to receive a kind of contrastive focus marking is a necessary feature of determiners that receive

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[20]Milsark cites examples like (i) below where stressed *some* seems to be able to receive a contrastive but not necessarily partitive interpretation.

(i)   SOMe unicorns entered, but not enough, thank God, to spoil the carpet.

[Milsark, 1977, p. 19]

It is also worth noting that contrastively focussed determiners are allowed in contexts that are limited to weak interpretations. A contrastive reading seems to be available, for instance, for *some* in (ii) below.

(ii)   At least there are SOMe flowers in your garden. We've had NONe this year.

a partitive interpretation (explored in Jäger (1996), as mentioned below). This may then explain the lack of a partitive interpretation for the cases mentioned above.

For comparative constructions like *less than five* or *more than three*, differences seem hard to find. Huettner's test only applies in the somewhat pathological case *less than two*, and there the contrast seems at best relatively weak.

(163) a. Less than two egg-laying turned up in our survey, perhaps because there are less than two.

    b. ?#Less than two egg-laying mammals suckle their young, perhaps because there are less than two.

I leave it as an open question what the exhaustive list of DPs is that can both occur in there-be sentences and receive partitive interpretations. It suffices to note that there is a large class consisting of at least *some*, *many*, *few* and the numerals that show this ambiguity. Since the class is relative large and uniform, and the two readings seem to be closely related on a intuitive level, it is desirable to account for the ambiguity in a systematic way, that is to devise a general mechanism that relates one meaning to the other. Jäger (1996) makes a proposal to this end. Jäger's proposal treats weak indefinites on their partitive interpretation as instances of a particular information structural configuration, namely one where a topical DP contains a focussed determiner.

3.5.4   Specific readings of weak DPs

Another interpretation of indefinites that intuitively falls under the category of DPs that are connected to particular individuals are the so-called specific readings of indefinites, as discussed by Fodor and Sag (1982) and subsequent authors. Fodor and Sag argue that indefinites are ambiguous between a referential and a quantificational reading. The evidence for this claim comes from constructions

where quantificational expressions are independently known to be constrained to narrow scope, while indefinites seem to have additional wide-scope interpretations. (164a) below has two interpretations, one according to which the death of one specific friend results in the inheritance, and one according to which the death of any friend would lead to an inheritance. In a framework in which possibility is modeled through quantification over worlds, these two readings can be paraphrased approximately as in (164a) and (164b). For the quantificational phrase *every friend of mine from Texas* on the other hand, only one reading is available, the one corresponding to the paraphrase in (165a), where the quantificational phrase is interpreted as part of the restriction on the set of worlds (i.e. has narrow scope).

(164) If a friend of mine from Texas had died in the fire, I would have inherited a fortune.   [Fodor and Sag, 1982, p. 369]

    a. In all (accessible and sufficiently close) worlds in which there is a friend of mine from Texas who died in the fire, I inherit a fortune.

    b. There is a friend of mine from Texas, and in all worlds in which that person died in the fire, I inherit a fortune.

(165) If every friend of mine from Texas had died in the fire, I would inherit a fortune.

    a. In all worlds in which every friend of mine from Texas died in the fire, I inherit a fortune.

    b. not: For every friend x of mine from Texas, in all worlds in which x died in the fire, I inherit a fortune. (i.e. If *any* friend of mine from Texas had died in the fire, I would inherit a fortune.)

Similarly, exceptional wide scope readings seem to be available for bare plural DPs and DPs with unmodified cardinals, as illustrated in (166).

(166) a. If friends of mine from Texas had died in the fire, I would have inherited a fortune.

　　　b. If three friends of mine from Texas had died in the fire, I would have inherited a fortune.

It has been discussed that not all DPs show the ability to take exceptional wide scope (see e.g. Reinhart, 1997, section 6.4 or Endriss, 2009, ch. 4, for German). For context dependent cardinals like *many* and *few*, (168d-e), and comparative cardinals like *more than* or *fewer than*, (168a-c), judgments seem harder, though a specific reading is potentially still available (judgments vary between the literature and native speakers I have consulted). (168e) for instance still seems compatible with a scenario where Bill overheard a rumor about a certain number of specific people, without being aware that they are students of mine.

(167) a. If more than two friends of mine from Texas had died in a fire, I would have inherited a fortune.

　　　b. If less than five friends of mine from Texas had died in a fire, I would have inherited a fortune.

　　　c. Each teacher overheard a rumor that more than two students of mine had been called before the Dean.

　　　d. If many/few friends of mine from Texas had died in a fire, I would have inherited a fortune.

　　　e. Bill overheard a rumor that many/few students of mine had been called before the Dean.

Before the background of Fodor and Sag's proposal that indefinites are ambiguous between a quantificational reading (subject to the usually structural constraints on scope) and a referential reading (scope-less, hence perceived as having widest scope), the discovery of the existence of intermediate scope readings has provided

much insight into the requirements that an account of indefinites will have to satisfy. Intermediate scope readings were discussed as a problem for Fodor and Sag's proposal for instance in Farkas (1981) and Abusch (1993) with the examples in (168) below, and have inspired a number of further theoretical proposals, e.g. those accounting for the exceptional scope readings of indefinites with choice functions (Reinhart, 1997; Winter, 1997; Matthewson, 1999; Kratzer, 1998) or as embedded topics (Cresti, 1995; Endriss, 2006, 2009).

(168) a. Each student has to come up with three arguments which show that some condition proposed by Chomsky is wrong. [Farkas, 1981]

 b. Every professor rewarded every student who read a book he had recommended. [Abusch, 1993, p. 90]

Among the choice function proposals, Reinhart (1997) and Winter (1997) assume that a choice function variable can be existentially bound at any level in the representation, allowing for the indefinite to be interpreted with an apparent variety of scopal possibilities, depending on the site of binding of the choice function. Matthewson (1999) and Kratzer (1998) argue that the proposals that allow for existential binding of the choice function at any level predict readings that are not attested.[21] Matthewson (1999) proposes that choice functions can only be bound at the highest level. Kratzer (1998) argues that choice functions are not existentially bound but contextually supplied. To capture the intermediate scope facts that motivate the less restrictive proposals by Reinhart and Winter, Kratzer proposes that choice functions have to be parameterized with an individual argument, and that intermediate scope readings depend on supplying a bound variable as the individual argument.

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[21]Winter and Reinhart acknowledge the existence of these gaps, but attribute them to the prominence of the widest scope reading under certain circumstances.

A completely different line of approach is the one taken in proposals by Cresti (1995) (building on von Fintel, 1994) and Endriss (2006, 2009). Cresti and Endriss treat specific readings of indefinites (with their apparent exceptional wide scope properties) as results of topic marking. The technical details of Cresti and Endriss' proposals differ and I will not discuss them here in detail. Instead I will later briefly discuss the presuppositions associated with topicality according to a proposal made by Gerhard Jäger.

While the behavior of wide scope indefinites is surprising if they are thought of as strong items as conceptualized by Milsark (that is, as quantificational items), they intuitively pattern with strong items when viewed as conveying more information than a merely existential or cardinal interpretation.

In the previous sections, three distinct interpretations of DPs were discussed, merely cardinal ones, partitive ones and specific ones. Milsark's distinction between obligatorily strong DPs and DPs with a weak interpretation was introduced, then some of the circumstances were discussed under which weak DPs can receive a strong reading. Strong readings seemed to be intuitively connected to a sense of presuppositionality, to be explicated below.[22]

In the next sections, I will turn to indefinite DPs that may, at least intuitively, lack the existential component that all cases discussed so far seem to possess.

3.5.5   Generic readings

As discussed in more detail in chapter 2, bare plural DPs and DPs headed by *a* can be interpreted in a generalizing way. (169a), as opposed to (169b), claims that coffee in general is tasty, not that there is some particular (amount of) coffee that

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[22]In the case of specific interpretations of DPs, matters are more complex, depending on the class of accounts considered. For intermediate scope readings in the accounts treating specific indefinites as topical, see e.g. Cresti (1995). For some choice functional accounts one may say that it is presupposed that a functional procedure is exists to find such an individual, though I will not attempt to make this notion more precise or connect it to the kind of presuppositions associated with the topic operator discussed below.

is tasty (or at least only indirectly so). Similarly (170a) describes a rule for the composition of silver dollars, and the existence of silver dollars with a different composition could be used as evidence against it. In contrast, (170b) is compatible with the existence of any number of unfound silver dollars.

(169)   a.   Coffee is tasty.

        b.   We found coffee in the pot.   [Milsark, 1977, p. 7]

(170)   a.   A silver dollar is 90% silver and 10% copper.

        b.   They found a silver dollar.

While both (169a) and (170a) make generalizations about a class of objects with instantiations in the actual world, and are thus compatible with existence claims, generalizing statements can also be used to make statements about classes of objects that are not instantiated in the actual world, like (171a). Indefinites in other syntactic positions are unable to receive a generic interpretation. As expected, this is the case for indefinites in there-be sentences, but also for instance in the object position of *have* (Heim, 1982, p. 46). Thus (171b) and (171c), in contrast to (171a), commit the speaker to believing in the existence of a unicorn.

(171)   a.   A unicorn has one horn.

        b.   There is a unicorn outside.

        c.   Sam has a unicorn.

The data show that for the generalizing interpretation of indefinites headed by *a* and bare plurals, differences in interpretation to merely-cardinal readings are easier to detect, both intuitively as well as with respect to their truth-conditions. Milsark does not discuss the ambiguity between generic and existential interpretations of bare plural and singular indefinite DPs as related to the partitive/non-partitive ambiguity, but some authors have proposed to see bare plural DPs and DPs headed

by *a* under a generalizing interpretation as instances of a strong reading of weak DPs (e.g. de Hoop, 1996, p. 46ff.). The term strong reading here takes on a meaning that might be characterized intuitively as 'not merely cardinal'.

This leaves open the question whether there is a deeper connection, with some of the same underlying mechanisms responsible for the strong readings discussed previously and generic readings. One indication that this may be the case comes from the connection between topical DPs and generic interpretations, in particular with respect to the so-called proportion problem (first noted by Irene Heim, see e.g. Kadmon, 1987; Berman, 1987; Rooth, 1987; for a discussion about the connection between syntactic structure see e.g. Kratzer, 1995, with regards to topics and associated presuppositions Krifka, 1984, 1998; Jäger, 1996, 2001b; von Fintel, 1994 a.o.). The problem arises from the assumption that adverbial quantifiers in the frameworks developed by Kamp and Heim are unselective binders, paired with the observation that in cases where two indefinites are in the scope of one potential binder, the interpretation is not always symmetric as predicted, as for instance the examples in (172) below shows.

(172)   In Italy, most donkey owners own more then one donkey. The most famous donkey owner is the avvocato Gianni Asinelli: he owns more than half of the donkeys in the country and treats them well. Yet, in spite of his good examples, *usually in Italy, if someone owns a donkey, he beats it.*

[Chierchia, 1992, p. 168]

It seems that the information structure of the sentence, and in particular the semantic effects of the topicality associated with the indefinites in question, determine which indefinite is asymmetrically quantified over. This is nicely illustrated by the following examples from Krifka (1998).

(173) a. …weil [einer alten Dame]$_i$ gewöhnlich eine Katze t_i gehört.
        because to an old lady usually a cat belongs
        '…because most old ladies own a cat'

   b. …weil eine Katze gewöhnlich einer alten Dame gehört.
        because a cat usually to an old lady belongs
        'because most cats belong to an old lady'   [Krifka, 1998, p. 23]

This observation has been taken to indicate that topic marking is a necessary component in deriving the generic interpretation, thereby unifying the class of strong readings of indefinites theoretically. I will instead assume here that the generic readings discussed in this section, and the quantificational variability effects in general, are not necessarily instances of "strong" readings, in the sense that the DPs in question are not required to be topic marked. I will instead assume that topic marking affects the restrictor of a generic quantification, but that the mechanism that derives generalizing interpretations is independent of that. I make this assumption because of the connection between topicality and scrambling. In much of the literature on topicality, a connection between topic marking and surface structure is explored. There seem to be exceptions however, in that generalizing interpretations are available for DPs that appear to be in a position that generally does not allow for strong readings. Jäger (2001b) concludes from this that "scrambling of a topic, though always possible and usually preferred (subject to certain variation among speakers), is not obligatory" (p. 110). I will instead assume that position and topic marking correspond more strongly, but that in cases like (174) below neither DP is topic marked (and hence forced to scramble).

(174) weil   gewöhnlicherweise eine Katze einer alten Dame gehört.
        because usually a cat an old lady belongs
        'because usually a cat belongs to an old lady.' /

        'because usually an old lady owns a cat.'

Again it is interesting to see which DPs participate in the existential / generalizing contrast. Cardinal DPs only rarely appear in generalizing statements. If they do, they appear to be general properties of groups of a certain size, as in (175), but never properties distributed over the individuals, as e.g. in (176).

(175) a. Eleven people form a soccer team.

      b. Many hands make light work.

      c. Four walls don't make a house.

Dobrovie-Sorin (2004) describes Corblin's observation and account of these facts as follows.

> "Corblin (1987: 57-58) observes that generic cardinal indefinites cannot express generalizations over atomic individuals: "Il n'existe pas d'interprétation générique distributive stricte des indéfinis nombrés." (There is no strictly distributive generic reading for cardinal indefinites). Corblin's (1987: 57-58) explanation relies on a pragmatic principle that basically says that examples of the type in (6b) can be assigned (representations corresponding to) generic readings, but such readings are blocked (or neutralized, in Corblin's terminology) because they can be expressed in a more direct way, by using the example built with a singular indefinite [...]"   [Dobrovie-Sorin, 2004]

It seems to me that the generalization that no distributive generic reading exists for cardinal indefinites is potentially misleading, if one were to include sentences like (176) below. What seems to be the case is that no reading exists where a distributive existential is interpreted in the scope of the generalizing operator.[23]

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[23]This makes an interesting connection to an observation made about the exceptional wide scope interpretations discussed in the previous section. Based on examples and observations made in Ruys (1995), Reinhart (1997) extensively discusses the connection between distributivity and wide-scope interpretation. One of the observations in this context is that cardinal DPs that can take exceptional wide scope cannot do so distributively. (i) below for instance cannot be interpreted as paraphrased in (ia), only a collective interpretation, as paraphrased in (ib), is available.

(i)   If three relatives of mine die, I will inherit a house.

      a.   There are three relatives of mine that each have the following property: If the relative dies, I will inherit a house.

      b.   There is a group of three relatives of mine that has the following property: If all of

(176)   a.   Thousands of people mow their lawn on Sundays.

     b.   More than fifteen specialists care for our clients at any time.

The interaction between different kinds of cardinal indefinites, distributivity and genericity has also been discussed in Crnič (2010). Crnič argues, roughly, that there is a strong tendency for indefinite cardinals to be interpreted distributively. If Corblin's generalization is right that indefinites that receive a generalizing interpretation can only be interpreted collectively, an explanation for the conflict that arises between indefinite cardinals and genericity emerges.

3.5.6   Quantificational variability effects

Closely related to the generic interpretation of indefinites discussed in the previous section is the observation that indefinites show so called quantificational variability effects. In fact, generic interpretations are often seen as one particular instance of this pattern. The bare plural DPs and DPs headed by *a* in the scope of adverbial quantifiers can receive interpretations corresponding to the quantificational force of these operators, e.g. in the scope of *usually*, *seldom* or *never* interpretations that can be paraphrased by quantificational expressions like *most*, *few* or *no*.

(177)   a.   Riders on the Thirteenth Avenue line seldom find seats.

     b.   A quadratic equation never has more than two different solutions.

<div align="right">[Lewis, 1975]</div>

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the relatives in the group die, I will inherit a house.

However, the generality of this observation has sometimes been questioned. Endriss (2009) for instance cites an example incompatible with a collective interpretation (a chess game cannot be in two different states at the same time), that seems to receive a distributive wide scope interpretation.

(ii)   Wenn zwei Spielstellungen   eintreten, ist das Schachspiel beendet. [Nämlich
       If   two game configurations occur,   is the chess game finished. Namely
       Schachmatt oder Remis.]
       checkmate or   draw
       'Two configurations terminate a chess game. Namely checkmate or a draw.'

A sentence like (177a), as Lewis discusses, "may be true even though for 22 hours out of every 24 – all but the two peak hours when 86% of the daily riders show up – there are plenty of seats for all." (177a) doesn't seem to quantify over time intervals then but rather over riders or ride-instances.

The same theoretical tools discussed above can be used. The explanation for the pattern is of course an integral part of Heim and Kamps theory. But theories that maintain that existential quantification is part of the meaning of the indefinite and derive the pattern in different ways, e.g. by allowing binding of a variable inside the DP are applicable as well. Berman (1987) explores early work in situation semantics and proposes, like several subsequent authors, to analyze these cases as quantification involving situations.

3.6 A unified semantics

In the previous sections, I have alluded to various pieces of semantic information that seem to be associated with indefinites. Following Russell, indefinites have often been taken to introduce into the semantic representation an existential quantifier restricted to individuals with a certain property described by the nominal complement. The proposals for dynamic interpretation developed by Heim and Kamp have challenged this view and proposed that indefinites extend the current discourse model by introducing a new discourse referent (essentially a variable) that the nominal property is predicated over. The main difference between Russell's theory and that by Heim and Kamp lies in the fact that for Heim and Kamp various quantificational operators can bind the variable (following Lewis' idea that adverbial quantifiers quantify over "cases," tuples of variables for Lewis). The flexibility of indefinites to associate with different operators could initially only be captured in the frameworks advocated by Kamp and Heim. In subsequent

literature, proposals have been made that can account for the same range of data either by redefining the semantics of the existential quantifier (e.g. in Groenendijk and Stokhof's *Dynamic Montague Grammar* (1989), or in the system developed in Jäger, 1996), or by advocating that the quantificational effects arise not because of the quantification over the individual variable, but over a variable inside the DPs denotation, e.g. a situation variable (see e.g. Berman, 1987; von Fintel, 1994).

The literature on the existence of varying interpretations of indefinites has inspired many authors to investigate further the conditions under which indefinite can receive different interpretations. As already mentioned in some of the discussion above, the syntactic environment in which indefinites appear has been thought to play a large role in the availability of different interpretations.

3.6.1   The connection between position and interpretation

One of the most interesting observations made in Milsark's work on the English existential construction concerns the dependency between the range of available interpretations of a DP and the syntactic environment that DP occurs in. As discussed at the beginning of this chapter, in addition to observing a restriction on the interpretation of DPs that can occur in the pivot positions of English existential sentences, Milsark also noted a striking restriction on the predicates that can follow the pivot DPs, as illustrated by the contrast in (178) below.

(178)   a.   There are many people sick/drunk/naked.

   b.   *There are many people tall/intelligent.   [Milsark, 1974, p. 39]

Milsark labels the two classes of adjectives of which (178a) and (178b) are examples as *state-descriptives* and *properties*, respectively, and characterizes them broadly as predicates that are typically assumed to hold more permanently (properties) or potentially just temporarily (state-descriptives).

> "[T]he adjectives in the list which permits NP downgrading are descriptions of states, while those in the no-go list are properties. [...] Properties are those facts about entities which are assumed to be, even if they are not in fact, permanent, unalterable, and in some sense possessed by the entity, while states are conditions which are, at least in principle, transitory, not possessed by the entity of which they are predicated, and the removal of which causes no chance in the essential qualities of the entity."   [Milsark, 1974, p. 211f.]

To account for the absence of property predicates in existential (*there be-*) sentences, Milsark pursues the following explanation. First, to account for the generalization that only weak DPs can occur as post-auxiliary subjects in existential sentences, Milsark postulates a semantic "cardinality" requirement for this position that excludes definite and quantificational DPs. Then, to account for the lack of property predicates in the coda position, he posits the requirement below that property predicates only occur with quantified DPs. That is, for Milsark there is a clash between the requirements on the interpretation of DPs imposed by the existential construction and by property predicates.

> "Properties are only predicated of quantified NPs. States may be predicated of quantified NPs, but may also be predicated of NP without quantification."   [p. 215]

As further evidence for this principle, Milsark provides data showing the unavailability of unambiguously weak/cardinal readings with property predicates outside of existential constructions, as in (179a) versus (179b), and the disambiguation towards a non-cardinal reading of ambiguous NPs, in (180a) versus (180b).

(179)   a.   Sm people are sick.

           b.   *Sm people are tall.

(180)   a.   People are sick.   (cardinal reading available)

           b.   People are tall.   (no cardinal reading available)

Following Milsark's work, Greg Carlson (e.g. 1977a; 1977b) explored the interpretation of determiner-less plural and mass noun phrases in English ('bare plurals'). Bare plurals in English can often receive an existential interpretation, as illustrated by the most natural reading of (181a) below, according to which some dogs have a certain property, or a generic, or characterizing, interpretation, illustrated by the most natural reading of (181b), according to which dogs in general have a certain property. Carlson also observed that in certain circumstances neither the existential nor the generalizing interpretation seem to capture the truth conditions of a sentence, but that instead, as in (181c), a claim seems to be made about a property that, in this case, the dog species as a whole has.

(181)   a.   Dogs were sitting on my lawn.   [Carlson, 1977a, p. 3]

        b.   Dogs are smarter than cats.   [Carlson, 1977a, p. 66]

        c.   Dogs are widespread.

Carlson, in essence, argues that these interpretations do not arise because of an ambiguity in the noun phrase itself, but that the interpretation is dependent on the predicate. Predicates, on Carlson's account, can relate the kind unambiguously denoted by the bare plural to individuals that realize this kind or stages of those individuals. Hence, Carlson distinguishes three kinds of predicates, ones he calls kind-level predicates, as in (181c), which I will not further discuss here, ones he calls individual-level predicates, as for instance illustrated in (181b), and ones he calls stage-level, responsible for existential readings of bare plurals, as illustrated in (181a). Carlson argues that the split between stage- and individual-level predicates (s- and i-level predicates, for short) that underlies the interpretational effects seen with bare plurals is the same split that is made in Milsark's work, i.e. state-descriptives in Milsark's terminology correspond to s-level predicates in Carlson's, and properties correspond to i-level predicates.

Following Carlson's work, Kratzer (1995) and Diesing (1990, 1992) have explored further what may underly the distinction between stage- and individual-level predicates. Both proposals share the assumption that subjects of the two classes of predicates differ in the syntactic positions they can occupy at the level of representation relevant for semantic interpretation. Diesing assumes that there are two distinct subject positions, a VP internal one (see e.g. Kitagawa, 1986; Koopman and Sprotiche, 1991) and a VP external one (in her account [Spec, VP] and [Spec, IP]), and casts the difference between the predicates as follows.

> Subjects of stage-level predicates can appear either in [Spec, IP] or in [Spec, VP]. Subjects of individual-level predicates can appear only in [Spec, IP].   [Diesing, 1992, p. 22]

For Diesing, the differences above are due to differences in the inflectional heads governing s- and i-level predicates. She assumes that s-level predicates are governed by an inflectional head that does not assign a thematic role to the higher subject position, and allows the subject to raise from the lower to the higher position at s-structure (with case motivating this movement), and to optionally lower at LF for interpretation. The data in (182), for instance, are presented as support for this claim.

(182) a. Firemen$_i$ seem to their$_i$ employers to be available.   (generic only)

       b. Firemen seem to the mayor to be available.   (both)

Diesing observes that in (183a), only a characterizing reading is available, that is each employer considers availability a property of all firemen. She argues that this is because the interpretation of *their* as dependent on *firemen* prevents the lowering of the subject DP to its a position that does not c-command the pronoun. In (183b) on the other hand, where no binding relation exists, both readings are available.

Similar facts obtain for German, as the examples in (183) below show.

(183)   a.   Aushilfskräfte_i scheinen ihrem_i Arbeitgeber immer zur
            Temp workers seem   to their employer   always to the
            Verfügung zu stehen.
            disposal   to stand
            'Temp workers seem to always be available for their employers.'

                                                                    (characterizing)

        b.   Aushilfskräfte scheinen der   Stadt immer zur   Verfügung zu
            Temp workers seem   to the city   always to the disposal   to
            stehen.
            stand
            'Temp workers seem to always be at the city's disposal.'   (both)

Certain adverbials can have a similar effect. In the examples in (184) below, the attitude adverb *gerne* (roughly 'gladly') depends on the subject to specify the holder of the attitude. It seems to prevent reconstruction of the subject into the lower VP internal position, and hence excludes an existential interpretation of the bare plural subject. Consequently both (184a) and (184b) can only be understood as making claims about properties of temporary workers in general.

(184)   a.   Aushilfskräfte_i scheinen ihrem_i Arbeitgeber gerne zur
            Temp workers seem   to their employer   gladly to the
            Verfügung zu stehen.
            disposal   to stand
            'Temp workers seem to gladly stand at their employer's disposal.'

        b.   Aushilfskräfte scheinen der   Stadt gerne zur   Verfügung zu
            Temp workers seem   to the city   gladly to the disposal   to
            stehen.
            stand
            'Temp workers seem to gladly stand at the city's disposal.'

Other constructions on the other hand depend on the subject DP to be in a lower position. The discontinuous DP construction e.g. seems to require the subject to reconstruct low (Diesing, 1992; Lechner, 1998). Adnominal *genug* ('enough') for instance is incompatible with the first of the two examples where the DP is

simultaneously required to c-command the dependent DP *ihrem Arbeitgeber*.

(185)　a.　?*Aushilfskräfte$_i$ scheinen ihrem$_i$　Arbeitgeber genug　zur
　　　　　Temp workers　seem　　to their employer　enough to the
　　　　　Verfügung zu stehen.
　　　　　disposal　to stand.

　　　b.　Aushilfskräfte scheinen der　Stadt genug　zur　Verfügung zu
　　　　　Temp workers seem　　to the city　enough to the disposal　to
　　　　　stehen.
　　　　　stand.
　　　　　'There seem to be enough temp workers at the city's disposal.'　(ex.)

For individual-level predicates on the other hand, Diesing proposes a control analysis, according to which the lower subject position is occupied by PRO and the subject is assigned a theta role in the higher subject position. This setup prevents lowering of the subject into the VP internal position. As expected, we find a contrast between the two adverbs *gerne* and *genug* with i-level predicates.

(186)　a.　?*Bankangestellte sind genug　reich.
　　　　　bank employees are　enough rich.

　　　b.　Bankangestellte sind gerne　reich.
　　　　　bank employees are　gladly rich.
　　　　　'Bank employees enjoy being rich.'

Diesing further proposes that syntactic structures are mapped to discourse representation structures of Kamp (1981) according to a structure mapping principle she calls the tree-splitting hypothesis. According to the tree-splitting hypothesis, syntactic constituents inside the VP get mapped onto the nuclear scope of a tripartite quantificational structure, while items above the VP level form the restrictor. Following Kamp and Heim's work, indefinites are assumed to introduce variables. Diesing proposes that default existential closure is only available at the VP level, and that variables in the restrictor are bound by higher non-existential operators (accounting for instance for the generic readings, though Diesing does not discuss

the other strong readings).

Kratzer (1995) on the other hand argues that the positional differences stem from an underlying difference in argument structure. According to her proposal, stage- but not individual-level predicates have a spatio-temporal event argument, which can function as the external argument of the predicate. The possibility of having the external argument position occupied by the event argument allows the subject argument to be realized VP internally. For individual-level arguments on the other hand, Kratzer assumes that the lack of an event argument forces the subject argument to serve as the external argument.[24]

With respect to subject arguments, the case for a dependency of interpretation on syntactic position is bolstered by data from German which show that differences in the surface order of subjects and certain adverbials in the *Mittelfeld* of embedded clauses influences grammaticality and interpretation in the predicted way.[25] Subjects of stage-level predicates can appear above or below certain sentence adverbials, and tend to receive strong interpretation in the higher, and weak interpretations in the lower position. In a discussion about the general properties of sharks, for instance, and whether they are transparent or opaque, a speaker may utter (187a) to assert that it is, in principle, possible to see a shark. On a sunny day on the beach on the other hand, someone may explain the curious fact that nobody is in the water by asserting (187b).

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[24]Though Kratzer acknowledges that making a static distinction between the two classes of predicates is a simplification, since the classification is strongly influenced by the context.

> "If a distinction between stage-level and individual-level predicates is operational in natural language, it cannot be a distinction that is made in the lexicon of a language once and for all. If I dyed my hair every other day, my property of having brown hair would be stage-level. Usually we thing of having brown hair as an individual-level property, though, since we don't think of persons dying their hair capriciously." [p. 125f.]

[25]In the descriptive literature on German sentence structure, Mittelfeld names the region between the finite verb's surface position in matrix clauses and its originating position in the sentence final verbal complex, following Drach's *topologischem Feldermodell* (1937).

(187)   a.   …weil   Haifische ja doch sichtbar sind.
             because sharks   PRT   visible   are

        ‘…because sharks are obviously visible.’

        b.   …weil   ja doch Haifische sichtbar sind.
             because PRT   sharks   visible are

        ‘…because there are obviously sharks visible.’ [Diesing, 1992, p. 36f.]

Subjects of individual-level predicates, in contrast, have a preference to occur in the higher subject position.

(188)   a.   *…weil   angeblich Feuerwehrmänner selbstlos sind.
             because allegedly fire men   altruistic are

        b.   …weil   Feuerwehrmänner angeblich selbstlos sind.
             because fire men   allegedly altruistic are

        ‘…because allegedly, firemen are altruistic.’   [Jäger, 2001b, p. 103]

This may also be illustrated by a thetic sentence template that is frequently used at the beginning of jokes. In (189a), the subject DP *ein Mann* appears in the Mittelfeld region while the sentence-initial position remains empty. The contrast between (189c) and (189d) shows that it is a low position in the Mittelfeld. This sentence template cannot be used to express generic statements, as (190) illustrates.

(189)   a.   Kommt ein Mann in   die Kneipe…
             Comes a   man into the bar…
             ‘A man walks into the bar…’   [Krifka, 1984]

        b.   Ein Mann kommt in die Kneipe…

        c.   Kommt neulich ein Mann in   die Kneipe…
             Comes recently a   man   into the bar…
             ‘Recently a man walks into the bar…’

        d.   *Kommt ein Mann neulich in die Kneipe…

(190) a. *Hat ein Elefant einen Rüssel. . .
           Has an elephant a   trunk. . .
       b. Ein Elefant hat einen Rüssel. . .

Jäger (2001b) builds on Kratzer and Diesing's observations and analyses of these positional interpretation effects and argues for a more indirect analysis of the facts. Crucial support for Jäger's proposal comes from data presented by Fernald (1994, 2000). Fernald's data show that the range of possible interpretation of indefinite subjects can vary depending on the direct object, or other constituents. (191a) and (192a) below only allow generic readings of their subjects, while (191b) and (192b) in contrast allow for an existential interpretations as well.

(191) a. Monkeys live in trees.   (only characterizing)

       b. Monkeys live in that tree.   (existential possible)

(192) a. Tycoons own banks.   (only characterizing)

       b. Tycoons own that house.   (existential possible)

To account for these facts, Jäger argues that the interpretation of subjects is dependent on how the information structural requirements of the clause are satisfied. In particular, Jäger assumes that each clause must have a topic marked constituent. Topic marking has, via a presuppositional operator, an effect on semantic interpretation. If the subject fulfills the topic role, it will receive one of the strong interpretations. If another constituent is topic-marked, the subject can receive an existential interpretation. Thetic clauses, that is presentational clauses that seemingly lack a topic, are analyzed by Jäger as containing a topic-marked event argument. The difference between sentences that allows weak subject interpretation despite lacking an overt topic (e.g. 193a below), and sentences that don't (like 193b), is then explained in terms of the kind of event or state argument these clauses have. Jäger argues that stative predicates do not provide the kind of

eventuality argument sufficient to function as a topic, either directly or via bridging (for more specifics, see Jäger, 2001b, p. 121f.). A weak subject interpretation for statives is available only when a specific DP is able to carry topic-marking.

(193) a. Bells were ringing.   (ex.)

        b. Bells are annoying.   (gen.)

In the absence of other factors, topic marking seems to have an effect on the syntactic configuration of the clause. Kratzer and Selkirk (2007) argue that the prosodic structure reflects this syntactic organization. In particular, they argue that the highest phrases within certain syntactic domains have to be parsed into prosodic major phrases and subsequently determine the presence of pitch accents accordingly. Accordingly, it seems then that in the absence of other factors that can influence the stress pattern of a clause (in particular givenness and contrastive focus), the distribution of pitch accents can reveal differences in the underlying syntactic organization of string identical sentences. The contrast in (194) below illustrates how this difference corresponds to a difference in the interpretation of indefinite DPs (here the bare plural *Drachen*).[26]

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[26]As far as I can tell, from the point of view of Kratzer and Selkirk's theory, (194a) is a slightly puzzling case. The absence of a major stress on the prepositional phrase *in den Alpen* in (194a) indicates that subject DP, locative PP and verb have to be parsed into the lowest syntactic domain which requires a major phrase in the prosodic structure. There are two ways in which this could be accomplished, though each requires some additional assumptions. By default, for Kratzer and Selkirk the lowest syntactic domain that corresponds to a part of the prosodic structure requiring a major phrase is VP. In this case, (194a) would indicate that the subject DP in (194a) occupies a VP internal subject position. Krater and Selkirk however assume that all subjects are introduced above VP. In this case, the lack of a pitch accent on PP and verb in (194a) could be taken to indicate that both PP and verb have moved out of the VP into a syntactic domain in which the subject again can satisfy the major phrase requirement. It would remain to be explained what triggers this movement, in particular the movement of the PP, since Kratzer and Selkirk assume that movement of the verb in an otherwise phonologically empty VP can be triggered by economy considerations. Topic marking would be an appealing trigger for the movement of the prepositional phrase, and Kratzer and Selkirk consider cases of intermediate topic positions towards the end of their discussion. However, it is not clear whether these topic positions would introduce their own syntactic domain which would require a major phrase.

As mentioned above, I will assume that subjects start in a position in which they form a relevant syntactic constituent with verb and prepositional phrase. I don't have any arguments whether this domain should be larger than what Kratzer and Selkirk assume (e.g. *v*P), or whether the subject

(194) a. Max erzählt jedem,   dass DRAchen in den Alpen wohnen.
           Max tells   to everyone that dragons   in the Alps   live

           'Max tells everyone that there are dragons living in the Alps.'   (ex.)

       b. Max erzählt jedem,   dass DRAchen in den ALpen wohnen.
           Max tells   to everyone that dragons   in the Alps   live

           'Max tells everyone that dragons live in the Alps.'   (gen.)

I assume that the subjects in general start out in the same relevant syntactic domain that verb and prepositional phrase start out in, so that in (194a) they can form a constituent of the relevant kind for Kratzer and Selkirk's proposal. I further assume that in (194a), an unpronounced eventuality argument has to serve as the topic, resulting in a thetic interpretation of (194a).[27] The locative PP in this case simply acts as a modifier of the topic argument, but does not introduce it. In (194b) in contrast, stress on both the subject DP and the prepositional phrase indicates the presence of two major phrases, compatible with a syntactic structure in which the prepositional phrase is the highest phrase in the VP and the subject DP has moved to a higher position, constituting the lexical material in the major phrase of a different syntactic domain.

The contrast in (194) illustrates that, under the assumption that prosodic structure is a reflex of syntactic structure, syntactic structure cannot be neglected in determining the topic status of constituents. The prepositional phrase *in the Alps* in (194b) does not seem to be in the right position to satisfy the topic requirement, consequently an existential interpretation for the subject DP is not available. Note that the facts change dependent on word order. If the prepositional phrase is in

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occupies a VP internal position. I also don't have good arguments for choosing this option aside from the fact that it appears to me conceptually simpler.

[27]I believe that cases like (i) from Jäger (2001b) are similar. I chose the example above since the underlying structure of cases like (i) with a non-verbal main predicate is more contested.

(i)   . . . weil   Löcher in dieser Hose sind.
              because holes   in these pants are.
           '. . . because there are holes in these pants.'   [Jäger, 2001b, p. 113]

a higher position, as in (195), it can serve as the topic argument (or alternatively restrict an unpronounced topic argument). An existential interpretation for the subject DP is available again.

(195)   Max erzählt jedem,   dass in den ALpen DRAchen wohnen.
        Max tells   to everyone that in the Alps   dragons   live
        'Max tells everyone that there are dragons living in the alps.'   (ex.)

Besides the interaction of syntactic position and topicality, Jäger's proposal would then lead us to explore further the distribution of phrases that can act as topics. Interestingly, locative adverbials for instance don't always seem to be of the right kind. The one in (196b) for instance seem to receive an interpretation that one might call frame-setting, following Maienborn (2001). Here the bare plural subjects of i-level predicates cannot be interpreted as existential despite the presence of a locative adverbial. Just as Jäger (2001a) concludes that statives have Davidsonian arguments that are 'intuitively too big to be possible objects of perception' (arguments that are not localized in time, for Jäger time slices of worlds), here we see that these are not the kind of arguments that lend themselves to topic status, and consequently force their apparent modifiers to be interpreted as frame-setting. Just from the presence of a locative modifier, even if specific or definite in some sense, we cannot conclude the presence of a topic argument; even though (196a) is, in some sense, a generalization about densely populated neighborhoods, the bare plural *bells* cannot be interpreted existentially. Similarly, *swans* in (196b), even though the sentence is 'about Australia' in some sense, cannot be interpreted existentially, as say in (197). I take this as evidence that locative modifiers do not, by themselves, introduce topic arguments, but that it instead is the predicate that determines the availability of an eventuality argument of the right 'anchorable' kind, and that, in absence of such an argument, locative adverbials get interpreted as frame setting.

(196) a. In densely populated neighborhoods, bells are annoying.

b. In Australia, swans are black.

(197) In Australia, there are swans.

As mentioned, I follow many authors in assuming that topics appear in a syntactically higher position on the surface. This may be indicative of a scrambling requirement for topics (of the sort assumed by Jäger, but applying obligatorily), or of a specialized syntactic topic position, as proposed e.g. in Frey (2004). Some cases have been discussed that seem to call the connection between topicality and syntactic position into question. Based on these cases, Jäger (2001b) for instance concludes that scrambling of topics is preferred but optional. Frey (2001) on the other hand take them to be indicative of the independence of strong readings and topicality. I believe that most of the cases under consideration are concerned with generalizing interpretations of indefinites. Therefore, as indicated above, I take it that generic readings of indefinites can arise independently of topic marking. The clearest case of this appear to be generic interpretations of objects which routinely appear in an apparent low position in completely unmarked sentences. Topicality interacts with genericity to give rise to asymmetric interpretations in sentences where otherwise the proportion problem arises. Other strong readings, that is specific and partitive ones, are assumed to be the result of topic marking.

3.6.2   The interpretation of topics

I will briefly discuss some aspects regarding the interpretation of topics, but will not be able to do justice to the large debate on the topic. The idea that an information structural notion like that of topicality might be responsible, at least in part, for the varying interpretation effects that were discussed above, has been advocated in the literature for a considerable amount of time. One early discussion

is found in Krifka (1984). According to Krifka, topicality explicitly specifies that it must be possible to compose the topical DP and the complementary comment through function application. According to the proposal made there, there are three possible interpretations for DPs, corresponding to different types: referential ones, predicative ones and quantificational ones. If referential or quantificational DPs are topicalized, the denotation of the comment must be of the familiar VP type, either to take a referential DP as its argument, or to be an argument to the quantificational DP. If the topicalized DP is predicational, the corresponding comment must be of the type of a quantificational phrase that can take a predicational argument. This may happen either through a stranded quantificational determiner (as e.g. in 198a), or if there is a (possibly unpronounced) adverbial quantifier (as e.g. in 198b).

(198) a. Schiffe liegen die meisten im   Hafen.
           Ships   lie   the most   in the harbor
           'Most ships are in the harbor.'

       b. Ein Löwe hat eine Mähne.
           A   lion   has a   mane.
           'A lion has a mane.'   [Krifka, 1984, p. 52]

If functional application is assumed to be one of the basic modes of composing meanings in the course of deriving complex meanings, the proposal made in Krifka (1984) does not, in fact, assign a considerable semantic role in deriving the final sentence meaning to the topic operator.[28] What the proposal predicts is that in absence of a comment structure that can be interpreted as a function of predicates, topics have to be interpreted either referentially or quantificationally. However it is not clear how e.g. underlyingly predicational DPs would be shifted in the appropriate ways. A suggestion made in the same paper may be what is responsible here. Krifka proposes in passing that verbs, in some sense, are not unsaturated,

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[28]I am neglecting the role of structured propositions in the proposal made by Krifka.

as conceptualized by Frege, but that they come into the semantic representations with indexed arguments. The composition of nominal arguments with verbs is proposed to work via co-indexation and a kind of unification mechanism. I will come back to this idea at the end of the chapter.

Newer proposals rely crucially on dynamic notions to capture the semantics of a topic operator, in a sense anticipated in Krifka (1984) for anaphoric definites (Krifka's T-definites). Krifka proposes that the co-indexation mechanism mentioned above assigns previously used indices to these indefinites. A similar mechanism is worked out more completely for all topical expressions, including indefinites (Krifka uses the term non-novel indefinites here) in Krifka (1998) and Jäger (1996, 2001b).[29] What is common to the newer accounts mentioned here is that they argue that the semantic effect of topicality is a kind of presuppositionality. An account with a different notion of topicality that also develops a unified semantics for the interpretation of indefinites can be found in Endriss (2009) and Endriss and Hinterwimmer (2006).[30]

The general goal of all the accounts mentioned above is to find a system that derives the range of strong, or not merely cardinal interpretations of indefinites by combining a basic lexical meaning of an indefinite with the semantic impact of topicality. It is in this context that I will turn to more data on the interpretation of *lauter* DPs and show that these are restricted to exactly those environments that allow for a weak interpretation.

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[29]Jäger (1996) makes use of two different kind of discourse markers, DMs and pegs, to keep track of individuals under current discussion.

[30]The connection between presuppositionality and the novelty condition often associated with indefinites, and the associated requantification problem are discussed in various places in the mentioned literature.

3.7 Distributional characteristics of *lauter* DPs

With the background laid out in the previous sections, we can approach the distribution of *lauter* argument DPs in German. I will show an array of data that, I hope, will reveal a picture in some sense inverse to the one sketched above, in that *lauter* DPs appear to receive only the weak interpretation discussed above, but none of the strong ones.

3.7.1 Subject effects with *lauter* DPs

Since there is some concern that the German translations of existential sentences that look surface similar to their English counterparts do not necessarily share (all of) their properties, the examples in (199) below show another contrast that Milsark and Carlson assumed to be indicative of the i-/s-level predicate distinction.[31] It is thought that only s-level predicates can be complements of direct perception verbs, as illustrated by the contrast between (199a) and (199b) below. This contrast seems to carry over to its German equivalent in (200) naturally.

(199)   a.   I saw one of my professors drunk.

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[31]I will continue to use the terms i- and s-level predicates because of their familiarity, but see Jäger (2001b) for a review of the phenomena thought to be indicative of the s-/i-level distinction and an argument that they do not pattern uniformly. Jäger argues that three properties thought to be indicative of s-level predicates, namely their ability to have weak subjects, to occur in direct perception reports and to describe transitory states, are both logically and empirically independent of one another. While Jäger's approach forces us to examine the data in more detail and highlights distinctions previously subsumed under the same category, the data that distinguish predicates that are complements of direct perception reports from those that allow for weak interpretations of their subject DPs still seem relatively sparse to me. I will therefore continue to assume a connection between the two properties, in a sense that is discussed by Jäger. If direct perception predicates require a complement that is a description of a particular perceivable event (e.g. Higginbotham, 1983) or situation (e.g. Barwise and Perry, 1983; Barwise, 1981), then the assumption that some predicates have either no such argument (e.g. Kratzer, 1995), or one that is of the wrong kind to be perceived, as proposed by Jäger (2001a), could lead to an explanation of the contrast these predicates exhibit in direct perception reports. Thus I take the contrast found in complements of verbs of direct perception to be indicative of an eventuality argument that could, in principle, be topicalized. The two cases of predicates that are thought to disallow weak subjects while being able to appear in direct perception reports discussed by Jäger (2001b) are adjectives like *naked* or *drunk*, and the verbal predicate *to tower over*.

b. *I saw one of my professors intelligent/boring.

(200) a. Ich habe einen meiner Professoren betrunken gesehen.
I   have one   of my professors   drunk   seen.
'I saw one of my professors drunk.'

b. *Ich habe einen meiner Professoren intelligent/langweilig gesehen.
I   have one   of my professors   intelligent/boring   seen.

The examples in (201) below illustrate what I believe to be a true, and surprising, generalization about *lauter* DPs, namely that they only seem to be able to occur as subjects of predicates of the first kind (s-level), but not the second (i-level), as illustrated by the contrast in (201) below. If we assume Jäger's explanation of the weak subject contrast, this shows that *lauter* DPs are not topicable, that is, the ungrammaticality of (201a) is due to the fact that it lacks an argument that can be construed as topic.

(201) a. *Bei uns am   Institut   sind lauter Professoren langweilige
By us   at the department are   *lauter* professors   boring
Typen / intelligent.
guys / intelligent.

b. Bei uns am   Institut   sind (heute) lauter Professoren krank /
By us   at the department are   (today) *lauter* professors   sick   /
betrunken.
drunk
'In our department, there are many sick / drunk professors today.'

The examples below illustrate that this problem can be remedied by making one of the DPs strong, in various, expected ways. (202) illustrates that with a weak predicate nominal like *ein Problem* ('a problem'), a *lauter* subject is unacceptable (though see the caveat discussed in the footnote), and a bare plural subject can only receive a characterizing interpretation. The examples below show that once the sentence concerns a particular problem under discussion, indicated either by the strong/partitive indefinite with stressed *ein* or by the definite DP *das Problem*,

existential readings of the 'professor' DP become available. (The *lauter* DP seems to prefer a non-initial position, for the bare plural DP both word order possibilities seem to be available. This will be discussed in more detail in the upcoming section.)

(202) a. ?*Lauter Professoren, die nicht unterrichten wollen, sind ein
       lauter professors that not teach   want are a
       Problem.[32]
       problem.

    b.   Professoren, die nicht unterrichten wollen, sind ein Problem.
       Professors   that not teach   want are a problem
       'Professors that don't want to teach are a problem.'   (only generic)

(203) a.   EIN Problem sind lauter Professoren, die nicht unterrichten
       One problem are *lauter* professors   that not teach
       wollen.
       want
       'One of our problems are a bunch of professors who don't want to

       teach.'

(204) a.   Professoren, die nicht unterrichten wollen, sind das Problem.
       Professors   that not teach   want are the problem
       'The problem are professors who don't want to teach.'

                          (both existential and generic)

    b.   Das Problem sind Professoren, die nicht unterrichten wollen.

                                         (as a.)

    c.   Das Problem sind lauter Professoren, die nicht unterrichten wollen.
       The problem are *lauter* professors   that not teach   want
       'The problem are a whole bunch of professors who don't want to

       teach.'   (ex.)

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[32]This sentence to me has a marginal group reading, according to which having any large group of professors unwilling to teach is a problem. See the discussion of generic readings of cardinal DPs above.

The data below show that other indefinite DPs don't share this restriction with *lauter* DPs. (205a) below has a *viele* DP, and (205b) a bare plural. Again, as expected and already illustrated in the data above, only the generic interpretation is available for (205b), not the existential one. And similarly, (205a) implies that there are at least some Professors in said department that are not boring or intelligent.

(205)   a.   In unserem Institut   sind viele Professoren
             In our   department are   many professors
             langweilig/intelligent.
             boring/intelligent
             'There are many boring / intelligent professors in our department.'

        b.   In unserem Institut   sind Professoren langweilig/intelligent.
             In our   department are   professors   boring/intelligent
             'Professors in our department are boring/intelligent.'

Diesing (1992, p. 37ff.) proposes that two further characteristics are indicative of the divide between the s- and i-level predicates; word order differences and extraction facts.

3.7.2   Word order effects

With respect to word order differences, Diesing argues that certain adverbial elements in the Mittelfeld of German embedded sentences occur at the left edge of VP, and thus effectively show DPs to be VP internal if they occur on their right, and VP external if on their left.[33] Given the above observation about *lauter*, we would expect *lauter* DPs to only occur on the right side of adverbs on the edge of VP, like *leider* below. By and large this is borne out, as illustrated in (206) below, though not all instances are as clear as one would hope.

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[33]Unfortunately the adverb position does not seem to separate VP internal and external elements too reliably.

(206)　a.　...weil　　ihm leider　　　　lauter Hindernisse im　　Weg
　　　　　　　because him unfortunately *lauter*　obstacles　　　in the way
　　　　　　standen.
　　　　　　stood.
　　　　　　'...because unfortunately there were a lot of obstacles in his path.'

　　　　b.　*...weil ihm lauter Hindernisse leider im Weg standen.

　　　　c.　...weil　　ihm VIEle Hindernisse leider　　　　im　　WEG
　　　　　　　because him many obstacles　　unfortunately in the way
　　　　　　standen.
　　　　　　stood.
　　　　　　'...because many obstacles unfortunately were in his path'

To add evidence for the generalization that *lauter* subjects are more restricted in their distribution than other DPs, I will present counts from a corpus study below.

3.7.3　The *wasfür* split

With respect to the extraction facts, Diesing investigates the properties of two discontinuous phrases in German, the split-topic construction discussed above, and discontinuous *wasfür* phrases, which I will show below. Diesing argues that in both cases, extraction from the DP and formation of a discontinuous DP is only possible if the DP originates VP internally.[34] Put differently, under the assumption that all relevant DPs originate VP internally, the generalization is that extraction from scrambled DPs is blocked. Thus the availability of discontinuous *wasfür* phrases should be indicative of a DP's VP internal position, and hence of its ability to receive a weak interpretation. The contrast between (207) and (208) illustrates this. The predicate *angekommen* ('arrived') allows for weak subject readings, and correspondingly, allows *wasfür* split as (207c) shows. The predicate *teuer* ('expensive') on the other hand forces a generalizing subject interpretation

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[34]The same assumption has been made for discontinuous DP constructions of the sort discussed in section 3.3.1 (p. 84), e.g. in den Besten (1981); Frey (1989). However, as discussed in section 3.3.1, *lauter* DPs are ruled out in this construction for independent reasons.

and does not permit a corresponding *wasfür* split, as (208c) illustrates.

(207)   a.   Ein großes Auto ist angekommen.
             A   large   car   has arrived.

        b.   Was   für ein Auto ist angekommen?
             What for a   car   is arrived
             'What kind of car has arrived?'

        c.   Was ist für ein Auto angekommen?

(208)   a.   Ein großes Auto ist teuer.
             A   large   car   is expensive.

        b.   Was   für ein Auto ist teuer?
             What for a   car   is expensive?
             'What kind of car is expensive?'

        c.   *Was ist für ein Auto teuer?

If both Diesing's generalization about the *wasfür* split and mine about *lauter* are on the right track, the two properties should align. In (209) below are a few representative examples from the corpus study that I will present later in this chapter. I believe the prediction is borne out in the following way. In each instance, the data in (210) illustrate that a *wasfür* split is possible whenever a *lauter* DP appears as the subject.

(209)   a.   Da   kommen lauter häßliche Männer!
             There come   *lauter* ugly   men
             'A whole bunch of ugly men arrived.'

        b.   "Plötzlich stürzten lauter Polizisten   rein, die MP's im
              Suddenly burst   *lauter* police officers in   the MGs in the
             Anschlag."
             firing position
             'Suddenly a whole lot of police officers burst in, the machine guns in

             aiming position.'

c. Das sind doch   lauter konservative Wünsche .
       That are   after all *lauter* conservative wishes

       'Those are a whole bunch of conservative wishes after all.'

    d. In Arkaden aus   weißem Tuch bewegen sich lauter Maskierte   in
       In arcades   from white   cloth move   SELF *lauter* masked ones in
       roten Gewändern.
       red   robes.

       'A whole bunch of masked people in red robes move through arcades

       of white cloth.'

(210)   a. Was kommen da für Männer?

        b. Was stürzen plötzlich für Polizisten rein?

        c. Was sind das doch für Wünsche?

        d. Was bewegen sich für Maskierte in Arkaden aus weißem Tuch?

3.7.4   Other environments

Lauter DPs also pattern as expected in a few additional environments that Diesing

discusses. Subjects of verbs expressing psychological states are harder to interpret

as weak indefinites (p. 42), as (211a) illustrates. As expected, *lauter* subjects are

marked in this position as well, see (211b).

(211)   a. Dogs are nervous.   (strong preference for generic reading)

        b. ?*Hier sind ja   lauter Hunde nervös.
           Here are   apparently *lauter* dogs   nervous.

   Similarly, the object of the verb *hasst* ('hates') in (212a) below can only be

understood generically (that is, it is said that Maria hats all books, not that there

are books that she hates). Correspondingly, a *lauter* DP makes a bad object here,

as illustrated in (212b).

146

(212)   a.   Maria hasst Bücher.
              Maria hates books

              'Maria hates books.'   (no existential interpretation)

        b.   *Maria hasst lauter Bücher.
              Maria hates *lauter* books.

3.8   *Lauter* **DPs obligatorily reconstruct**

In the upcoming section, I will have a closer look at the surface positions of *lauter* DPs. I will argue that *lauter* DPs can appear in surface positions outside of VP only if they have the ability to reconstruct into a VP internal position. In particular, I assume that this is what happens in cases where *lauter* DPs appear in the sentence-initial position in German. I will show however that *lauter* subject DPs occupy this position significantly less often than subject DPs in general.[35] *Lauter* DPs could be seen as a useful indicator then. We might find that upon closer examination of DPs in the sentence-initial position, taking their interpretation into account might matter when describing their distribution. I speculate that for *lauter* DPs, and possibly DPs in general, the reason for this observation may simply be economical. If a DP has to obligatorily reconstruct, movement of a different constituent which does not carry this requirement may be a preferred alternative. Before showing data on the distribution of *lauter* DPs, I will briefly discuss some background on reconstruction.

The term reconstruction is used to describe two distinct phenomena, partial and total reconstruction. Partial reconstruction describes a structure in which the scope of part of a moved constituent has to be interpreted at the position at which it appears on the surface, while a different part of the constituent may be able to display scopal properties connected to its originating position. The wh-moved object *which dress of hers* in (213) has to have wide scope with respect to the wh-

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[35]I assume that this is also true for other grammatical functions, however I do not have enough data to make this point.

element *which*, since only a constituent question interpretation is available. The co-referential pronoun *her* on the other hand appears to be bound by the DP *your daughter* which appears at a lower position on the surface, but c-commands the originating position of the pronoun (equivalent cases with co-varying pronouns bound by a quantifier are easy to construct). This conflict can be resolved by allowing part of the wh-moved phrase to reconstruct into the lower position (see e.g. Saito, 1989).

(213)   [Which dress of hers$_i$]$_j$ did [your daughter]$_i$ wear t_j?

Total reconstruction on the other hand, as the name suggests, describes movements which are invisible to the semantic interpretation, in that an entire phrase which appears at a moved position in the surface string is interpreted in its originating position. The name reconstruction suggests an operation that "undoes" a movement process, a lowering operation, as originally proposed by May (1978). However, a variety of different proposals as to the mechanism of reconstruction exist (e.g. interpretation of a lower copy, Chomsky, 1993 a.o.; semantic reconstruction, von Stechow, 1991 a.o.), for some of which movement at the relevant level may never have taken place (e.g. Sauerland and Elbourne, 2002 who treat reconstruction as movement in the phonological component only).

A number of properties have been associated with reconstruction, e.g. narrow scope interpretations contrary to the surface structure, as in (214), where the indefinite DP *an Austrian* can take scope below *likely* (What is likely is that some Austrian or other will win, even though no particular Austrian is favored), or the licensing of NPIs in positions that appear outside the scope of the licensor, as with the DP *a doctor with any reputation* in (215) (both examples from Sauerland and Elbourne, 2002, p. 286f.).

(214)   [An Austrian]$_i$ is likely t_i to win.

(215)   [A doctor with any reputation]$_i$ is likely not to be t_i available.

3.8.1   German V2 and reconstruction

German is a so-called verb second language, that is, in declarative main clauses the tensed element of the sentences appears in the second position ("V2"). At least in those cases where the tensed element is the main verb, it is commonly assumed to have moved there from an underlying sentence final position (den Besten, 1977, and subsequent authors). I will follow a large number of proposals that assume that the position of the finite verb in V2 main clauses is the head position of CP.[36] As far as I can see though, nothing hinges on which particular functional projection is assumed to be at play.

What is interesting for the purposes at hand, is that in declarative main clauses there is an additional requirement that the sentence-initial, preverbal position cannot remain empty. This requirement can be satisfied by moving almost any one argument or adjunct constituent into the sentence-initial position, SpecCP under the assumed structure.

A number of authors assume that the movement into SpecCP is eligible for total reconstruction. The examples in (216) illustrate that quantificational phrases lower in the surface structure can bind pronouns in SpecCP. The examples in (217) contain NPIs (the italicized constituents) that are licensed by items lower at surface structure, as witness by the ungrammaticality of these sentences when the negative licensor is replaced by a positive expression.

(216)   a.   [Seinen$_i$ Verleger]$_j$ hat [jeder Autor]$_i$ als erstes t_j angerufen.
             His   publisher has every author as first   called.
             'Every author called his publisher first.'

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[36]For an overview of different accounts of the underlying cause of V2 see e.g. Vikner (1995, p. 51ff.).

b. [Seine$_i$ Lieblingsbücher]$_j$ hat [keiner von diesen Autoren]$_i$ t_j auf
His   favorite books   has none   of   these authors   on
dem Flohmarkt verramscht.
the   flea market sold dirt cheap

'None of these authors has sold of his favorite books dirt cheap at the

flea market.'

(217) a. *Scheren$_i$* tut   er sich um   seine Angestellten aber nicht t_i.
Care   does he SELF about his   employees   but not.

'Though he doesn't care about his employees.'

b. [*Einen Hehl*]$_i$ hat sie aus ihrer Ablehnung allerdings selten /
A   secret has she of her   rejection   admittedly rarely /
*oft t_i gemacht.
frequently   made

'Admittedly, she rarely kept her rejection secret.'

c. *Geheuer$_i$*   war mir   das ganze [noch nie]   / *[schon   immer] t_i.
Undodgy was to me the entire yet   never /   already always

'The entire thing has always seemed dodgy to me.'

Objects in SpecCP

If SpecCP is a position that easily allows for reconstruction in German, it would

be a good position to test whether *lauter* DPs can occur in this position. For run

off the mill objects, there is a reasonable expectation that reconstruction should

not be blocked by independent factors.[37] To test for the ability of object DPs to

reconstruction, I extracted sentences containing *lauter* DPs in direct object position

from a corpus of German newspaper articles. A few representative examples can

be found in (218a-c) on the next page.

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[37]For the ease of reconstruction of object DPs from SpecCP in English, see also Bader and Frazier
(2006).

(218) a. "Denn   dann," fürchtete Professor Bächer, "hätten wir lauter
         Because then fears   professor Bächer   had we
         Hotelzimmer entwerfen   müssen."
         lauter   hotel rooms design   must
         ' "Because then," Professor Bächer fears, "we would have had to design

         a whole lot of hotel rooms." '

    b. Ihr   erzählt immer was   von Verkehrsberuhigung, aber
       You.PL tell   always something about traffic calming   but
       in Eurem Programm versprecht Ihr lauter neue Straßen.
       in your   program promise   you *lauter* new   streets.
       'You always talk about calming the traffic, but in your program you

       promise a whole lot of new streets.'

    c. Er reiht   lauter Anfänge   von Geschichten aneinander, ohne
       He strings *lauter* beginnings of   stories   together   without
       sie   weiterzuerzählen.
       them further to tell
       'He strings a whole lot of beginnings of stories together, without

       continuations.'

In all of these instances, the direct object *lauter* DP could be moved into SpecCP
without affecting grammaticality. While there might be a slight bias against
the constituent order below, envisioning a context that emphasizes the nominal
complement to *lauter* makes the examples completely natural to me in these and
almost all other cases I found. That is, while there seems to be the desire for a
reason to move these DPs into SpecCP (e.g. contrastive focus on the complement
NP), when reconstruction is possible, the sentences are acceptable.

(219) a. Lauter Hotelzimmer hätten wir entwerfen müssen.
         Lauter hotel rooms   had   we construct must.
         'We would have had to design a whole lot of hotel rooms.'

    b. Lauter neue Straßen versprecht ihr.'
       Lauter new roads   promise   you.
       'You promise a whole bunch of new roads.'

c. Lauter Anfänge   von Geschichten reiht   er aneinander.
   Lauter beginnings of   stories   strings he together.
   'He strings together a whole bunch of beginnings of stories.'

(220) below is an example from the corpus which illustrates this point as well.

(220)   Lauter heiße Luft läßt der raus, sonst   nix.
        Lauter hot   air   lets he out, otherwise nothing.
        'He is letting out nothing but hot air.'

The surface positions of German matrix subjects

While in the cases above, the object interpretation of the *lauter* DP indicates a position that the moved DP can easily be reconstructed to, the need to reconstruct may be responsible for the slight perceived bias against *lauter* DPs in SpecCP. To assess whether the intuition that there is a slight bias against *lauter* DPs in SpecCP is reliable, I compared the distribution of subject DPs in German V2 main clauses in general to that of *lauter* DPs.

Upon an inspection of *lauter* subjects in declarative main clauses, it turns out that, while subject DPs overall have a slight preference to appear in the sentence-initial position, *lauter* DPs are markedly dispreferred in this position. This is exemplified by the data in (221), and the contrast between the determiners *lauter* and *alle* below.

(221)   a. ?Lauter Professoren sind krank.
           Lauter professors   are   sick

        b. Heute sind lauter Professoren krank.
           Today are   *lauter* professors   sick.
           'A whole bunch of professors are sick today.'

(222)   a.   Am   Straßenrand stehen lauter leere   Kisten.
            At the curb   stand   *lauter*   empty boxes.
            'There are a whole bunch of empty boxes standing at the curb.'

         b.   ?Lauter leere   Kisten stehen am   Straßenrand.
            Lauter   empty boxes   stand   at the curb.

(223)   a.   Alle leeren   Kisten stehen am   Straßenrand.
            All   empty boxes   stand   at the curb
            'All the empty boxes are standing at the curb.'

         b.   ?Am   Straßenrand stehen alle leere   Kisten.
            At the curb   stand   all   empty boxes

As with the object DPs above, the judgments here depend strongly on creating the right context for the relevant sentence. If the speaker's utterance makes a thetic statement, or if there is contrastive focus on the complement NP, judgments seem to improve.

As indicated, the judgments in the preceding examples are not very robust, however the dispreference for *lauter* DPs to appear in the sentence-initial position is substantiated by a look at a large amount of data from written German. In the following, I will present some distribution data gained from an examination of a large collection of newspaper articles; a text corpus containing about 200 million word tokens (an estimated 12 – 12.5 million sentences) from various German newspapers.[38]

Since the overall frequency of determiner *lauter* is quite low, I did not rely on automatically generated part-of-speech tags to distinguish the determiner from the homophonous comparative form of the adjective *laut* ('loud'), *lauter* ('loud'+'er'), but relied on manual inspection of all instances of the string *lauter* in the corpus.

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[38]The newspaper texts were drawn from the following German newspapers: Frankfurter Rundschau, Stuttgarter Zeitung, VDI-Nachrichten, tageszeitung, German Law Corpus, Donaukurier and Computerzeitung. I am very grateful to the Department of Computational Linguistics at the Universität Stuttgart for providing access to the corpora through their CWB interface (Christ, 1994). The IMS CWB can be found at cwb.sourceforge.net, the IMS Textcorpora and Lexicon Group at www.ims.uni-stuttgart.de/projekte/corplex/.

After removing duplicate sentences in the results (many syndicated stories run in several of the newspapers), 3,852 instances of the string *lauter* were found. Of those, 1,570 were instances of the comparative form of the adjective *laut*. I also removed 3 instances of the adjective lauter ('pure') (as in 224 below), leaving 2,279 data points for further inspection.[39,40]

(224) Nun ist natürlich Betrug Betrug, egal wie lauter die Absicht sein mag.
       Now is of course fraud fraud, however pure the intent be may.
       'But of course fraud is fraud, not matter how pure the intent may be.'

In 1,554 of the remaining 2,279 data points, the *lauter* DP was complement to a prepositional head.[41] The distribution of prepositional phrases with *lauter* DP

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[39]Since *lauter* never inflects, I assume that almost all, if not all instances of *lauter* in the corpus were found. Since the data were manually sighted and annotated, I expect a relatively high precision in extracting the relevant instances as well.

[40]This number shows that determiner *lauter* is relatively infrequent. There are either 2,279 instances of determiner *lauter* in a 12 million word corpus (1.899×10^{-4}%). In comparison, a quick search shows almost 25000 instances of *manch* and its inflected forms (a relative frequency a magnitude higher: 2.0784×10^{-3}%), between 93,444 (7.787×10^{-3}%) and 121,778 (1.015×10^{-2}%) instance of *viel* forms (depending on which part-of-speech tags are included) and 15,366,662 (1.2806%) instances of d-series definite determiners (*der,die,das* and forms in their inflectional paradigm) (all of the comparison searches relied on automatically generated part-of-speech information and are therefore less precise).

[41]In those 1,554 instances, a substantially large number of prepositional phrases were of a particular construction that could be described as a 'rationale adverbial'. In those cases, the *lauter* DP occurs as complement of the prepositions *aus* (in these case the range of complement nouns seems to be limited to ones expressing emotions; 157 instances) and *vor* (888 instances). In both cases, the prepositional phrase expresses some kind of rationale, as illustrated in the data in (i) and (ii) below. In all of these cases, a PP of the form *aus lauter* NP or *vor lauter* NP can be paraphrased as 'because of NP'.

(i)   a. Er hatte sie in der Hosentasche – war da vielleicht gar das Herz
           He had them in the pants pocket – was there maybe even the heart
           hingerutscht vor lauter Aufregung?
           slipped to *vor lauter* excitement?
           'He had them in the pocket of his pants – was that maybe even where his heart had slipped to?'[42]
       b. Vor lauter Zähneklappern brachte der Mann zunächst kein Wort heraus.
           Vor lauter tooth chattering brought the man at first no word out
           'Because of all the chattering of teeth, the man didn't bring out a word at first.'

(i)   a. Der Schweizer Schriftsteller zeigt in seinem Stück, wie sich ein biederer
           The Swiss author shows in his piece, how SELF a bourgeois
           Bürger aus lauter Angst Brandstiftern ausliefert.
           citizen *aus lauter* fear fire raisers surrenders.

n	description	examples
1,045	rational adverbial prepositional phrases	
509	complement to a prepositional head	(225a,b)
278	free standing DPs, typically appositive DPs or headlines	(225c,d)
236	subject DPs	(225e)
202	direct object DPs	(225f)
6	possessive DPs	(225g)
3	indirect object DPs	(225h)
2,279		

Table 3.2: Categorization of remaining *lauter* DPs

complements appears to me no more restricted than that of other PPs. For the

purposes at hand, I will focus on DPs in argument positions, which constitute 441

of the remaining 725 *lauter* DPs in the corpus (e.g. 225e,f,h; see Table 3.2).

(225)   a.   Wir sitzen hier hoch über Friedberg und können zwischen lauter
We sit here high above Friedberg and can between *lauter*
leckeren Speisen wählen.
tasty dishes choose.
'We are sitting here high above Friedberg and can choose between lots

of tasty dishes.'

   b.   Die Esche wurde gefällt, weil in ihrem Umfeld wegen
The ash tree was felled, because in its surroundings for
zu viel Schattens und lauter Wurzeln die Grabbepflanzung
too much shade and *lauter* roots the grave planting
schwierig geworden sei.
difficult become was
'The ash tree was felled because in its surroundings the cultivation of

the graves had become difficult because of too much shades and all

the roots.'

'In this play, the Swiss author shows how a bourgeois citizen surrenders to the arsonists because of fear.'
   b.   Er kauft aus lauter Liebe zur Natur einen Plastikbaum.
He buys *aus lauter* love to the nature a plastic tree.
'For all his love of nature he buys a plastic tree.'

c. Schweineblut, Pistolen   und verstümmelte Attrappen, lauter
    pig blood,   hand guns and mutilated   props,   *lauter*
    Kinoeffekte
    movie effects

d. Zimmermeister   hat der August gelernt, Drechslermeister der
    Carpenter master has the August learned, turner master   the
    Fritz, und Schreinermeister   der Richard – also lauter
    Fritz, and cabinet maker master the Richard – thus *lauter*
    Berufe,   die genau die richtigen Voraussetzungen für den
    professions that exactly the right   requirements   for the
    Betrieb   einer Holzwerkstatt   bieten.
    operation of a   wood workshop offer.
    'August is a master carpenter, Fritz a master wood turner, and Richard

    a master cabinet maker – all professions that satisfy exactly the right

    preconditions for the operation of a wood workshop.'

e. Im   Grunde sind es lauter blasierte Schöngeister, mit   denen
    In the ground are it *lauter* conceited esthetes   with who
    sich Fräulein Cerphal im   Fuchsbau umgibt.
    SELF Miss   Cerphal in the Fuchsbau surrounds
    'Those people that Miss Cerphal surrounds herself with in the Fuchs-

    bau are basically all conceited superficial esthetes.'

f. Kaum verzieht   sich der Rauch, sieht man lauter Verwundete.
    Barely draws away SELF the smoke, sees one *lauter* wounded
    'As soon as the smoke lifts you see lots of wounded people.'

g. Und mitunter   ist der Massenauftrieb lauter Hochmögender
    And occasionally is the mass buoyancy *lauter* influential (archaic)
    auch der Beginn   einer neuen Entschlossenheit.
    also the beginning a   new   determination.
    'And occasionally the mass buoyancy of influential people also stands

    for the beginning of a new kind of determination.'

h. Es klingt,   als begegne man auf einem Rummelplatz lauter lieben
    It sounds, as meets   one on a   fairground   *lauter* dear
    Bekannten.
    acquaintances.
    'It sounds as if one were meeting a whole bunch of dear acquaintances

    at the fairground.'

For now, I will focus on the distribution of *lauter* subject DPs in matrix clauses. To better understand the distribution of *lauter* subject DPs, we need at least a rough baseline expectation of overall behavior of subject DPs in matrix clauses. In a study of the overall word order patters in German, Ursula Hoberg found that the sentence-initial position in German (the 'Vorfeld') is most frequently occupied by subject DPs (about 65% of the time in her data), and that conversely subject DPs show a preference for the Vorfeld position as well (about 56% of all matrix subjects were found to occupy this position; Hoberg, 1981). A quick search in the TIGER corpus (a German newspaper corpus manually annotated for syntactic structure and dependencies; Brants et al., 2002) shows a similar picture: Of the subjects of the roughly 43,000 unembedded sentences in the corpus, about 53% occur before the finite form of the verb. In contrast, the corpus examples of *lauter* subject DPs in matrix clauses show a very different picture. Of the 236 cases of *lauter* subject DPs, 145 were subjects of matrix verb-second clauses. Of those subject DPs, only 10 occurred in the Vorfeld (6.9%).[43]

While this result shows the clear dispreference of *lauter* DPs for the structurally high Vorfeld position, it also shows that *lauter* DPs are not categorically excluded from this position. What we should see than in those cases where a *lauter* DP occurs in an 'unusual' position is that we have an 'unusual' information structure as well. I think that this is the case. In (226) below are two examples that seem to be thetic.

(226)   a.   Die Holzhäuser   sind von der Walliser   Sonne braungebrannt, und
             The wood houses are   of   the Wallisian sun   brown burned, and
             lauter schneebedeckte Hörner bilden die sehenswerte
             lauter snow covered   horns   make   the see worthy
             Hintergrundkulisse: Wilerhorn, Bietschhorn, Breithorn, Mechthorn,
             back drop: Wilerhorn, Bietschhorn, Breithorn, Mechthorn,
             Aletschhorn, Fußhörner, Wannenhorn und noch einige Hörner
             Aletschhorn, Fußhörner, Wannenhorn and then some horns

---

[43]A full list of these examples can be found in the appendix on page 195.

mehr.
more

'The wooden houses are tanned by the Wallisian sun, and a whole lot of

peaks form the picturesque back drop: the Wilerhorn, the Bietschhorn,

the Breithorn, the Mechthorn, the Aletschhorn, the Fußhorns, the

Wannenhorn and then some more horns.'

b. Plötzlich kitzelt ihn ein schwerer säuerlicher Geruch in der Nase,
Suddenly tickles him a heavy   sourly   smell in the nose,
er blickt zu Boden, lauter weiße Turnschuhe umringen seine
he looks to floor, *lauter* white sneakers   surround his
schwarzpolierten Maßschuhe.
black polished   custom-made shoes

'Suddenly, his nose is tickled by a heavy, sourly smell, he looks to the

ground, a whole lot of white sneakers surround his polished black

custom-made shoes.'

(227a) is a case where the topic is expressed by the anaphoric adverbial *darauf*. The

stylistically unmarked, albeit more plain, way to express this would have been as

in (227b).

(227) a. Braune Knautschledersofas,   Kronleuchter, Springbrunnen und
Brown crushed leather couches, chandeliers,   fountains   and
lauter vergnügte Bürger der   DDR sind darauf   zu sehen.
lauter cheerful   citizens of the GDR are   there on to see

'On them you can see brown couches made of crushed leather, chan-

deliers, fountains and lots of cheerful citizens of the GDR.'

b. Darauf sind braune Knautschledersofas, Kronleuchter, Springbrunnen

und lauter vergnügte Bürger der DDR zu sehen.

(228) finally is a case where a *lauter* DP has been fronted for contrastive reasons.

(228) Nicht ein Team, sondern lauter Einzelspielerinnen, die   sich erst
       Not   a   team, but   *lauter* solo players,   who SELF not until
       beim   Warmmachen kennengelernt zu haben schienen, standen auf
       by the warm up   gotten to know to have   seemed   stood   on
       dem Feld.
       the   field.
       'There wasn't a team on the field, but a bunch of solo players who didn't

       seem to have met until the warm up.'

The example above show that even though on the surface, *lauter* DPs can appear

relatively high in the tree structure, they don't receive a topical interpretation, as

is occasionally claimed for DPs in SpecCP. Instead the examples above suggest

that the interpretation that *lauter* DPs receive, even when in SpecCP are still weak

existential interpretations. In each case, a different DP can be construed as topical,

and hence satisfy the topic requirement postulated e.g. in Jäger (2001b).

Some other observations may support the current findings as well. Among

the matrix clauses, there were thirteen existential sentences, which contained the

pronoun *es* as a subject-like element, a main verb *be* and a *lauter* DP in a post-verbal

position, as illustrated in (229). There was a similar number of sentences where a

placeholder *es* is filling the SpecCP position, as illustrated in (230).[44]

(229) Es sind *lauter...* / That is *lauter...*

       a.   An einem Tag liefen Filme über Männerbeziehungen (zunächst in
            At one   day ran   films about men relationships   (at first   in
            Portugal, dann in Argentinien), an einem anderen waren es lauter
            Portugal, then in Argentina),   on one   other   were it *lauter*
            Filme über Kindheit.
            films about childhood
            'During one day, films about relationships among men (at first in

            Portugal, then in Argentina) were shown, during another there were

            a whole bunch of films about childhood.'

_____

[44]I label a construction as placeholder *es* if *es* will disappear once another constituent is moved
into SpecCP.

b. Es sind lauter von Kater   und Restrausch   verwischte
   It are *lauter* by hang-over and remainder intoxication blurred
   Erinnerungen, in denen mitunter   Laures Stimme aus   der
   memories,   in which occasionally Laure's voice   from the
   Gegenwart über den Bildern aus Bettys Vergangenheit liegt.
   present   over the images of   Betty's past   lies
   'These are a whole lot of memories, blurred by the hang-over and

   remainders of the intoxication, in which Laure's voice from the present

   occasionally overlays the images of Betty's past.'

(230) placeholder-es

a. Es sitzen lauter Zensoren in diesem Verein.
   It sit   *lauter* censors   in this   club
   'There are a whole lot of censors in this club.'

b. Aber es waren lauter CSU-Menschen in der Vorstellung, und die
   But it were *lauter* CSU-people   at the show,   and those
   haben nach einer halben Stunde den Saal   verlassen.
   have after a   half   hour   the large room left.
   'But there were a whole lot of CSU people at the show, and those left

   the room after half an hour'

c. Aber es sind lauter Fallstricke in dem Gesetzentwurf, die keiner
   But it are *lauter* pit falls   in the   bill draft   that noone
   zur Kenntnis   nimmt.
   to   knowledge takes
   'But the draft of the bill contains a whole lot of pit falls that nobody

   acknowledges.'

Embedded subjects

While the section above provided evidence that in the right circumstances reconstruction from SpecCP is easy, and *lauter* DPs can occupy the sentence-initial position without affecting grammaticality, reordering of constituents in the Mittelfeld is subject to more constraints. Frey (2004) has argued that the initial position in the Mittelfeld (sometimes referred to as *Wackernagelposition*) is information-structurally

marked for topicality (more so than or rather in contrast to SpecCP). As mentioned in the discussion of Diesing's generalization about DPs to the left and right of VP delimiting adverbials above, determining the structural position of constituents in the Mittelfeld is more difficult than in matrix clauses, since in most instances in embedded verb-final clauses, there is no "positional marker" as clear as the finite verb in matrix clauses. The order of constituents in the Mittelfeld is constrained by various factors (pronominalization, definiteness/indefiniteness, and base orders preferences of different predicates). Frey, similar to Diesing, argues that the Wackernagelposition can often be identified with the help of certain adverbials.[45]

Of the 35 corpus examples of *lauter* subject DPs in run-off-the-mill embedded clauses with verb-last structure, 32 contained an adverbial or additional argument that could, in principle, have appeared above or below the subject DP. In all cases but one (the, to my ears somewhat marked 231 below), the *lauter* subject DP appeared below of the highest adverbial or argument, hence not in the Wackernagelposition. While a higher adverbial or argument shows that a lower DP is not in the Wackernagelposition, absence of either does not automatically indicate that the DP in question occupies this position, in particular, the DP *lauter Berliner Bands* in (231) may still occupy a lower position. However, what is unusual about (231) is that the DP appears to have moved past the argument DP *sich*. In the next section I show that this is typically not possible for *lauter* DPs. I will not have much to say about (231) other than that its status is unclear to me at this point.

(231)   Wenn also   lauter Berliner Bands sich treffen, deren gemeinsamer
          If   hence *lauter* Berlin   bands SELF meet,   whose common
          Nenner   es ist, laut, schnell und still alive auf dem Stand der
          denominator it is loud, fast,   and still alive on the   stand of the
          Zeit zu sein, dann ist das Ganze mit   Sicherheit für einen guten Zweck.
          time to be,   then is the whole with certainty   for a   good cause.

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[45]Similarly, in English, DPs to the left of certain adverbials tend to be interpreted topical as well; for some experimental evidence see Stolterfoht et al. (2007).

'So if a bunch of bands from berlin meet whose common denominator is to be loud, fast and still alive at the moment, the entire thing must certainly be for a good cause.'

3.8.2 Scrambling

While German has a preferred word order of constituents in the Mittelfeld, it allows to reorder these constituents in various ways. German does not allow long scrambling (scrambling out of a finite clause), but constituents can be reordered within the clause both below and above the subject. In general, the term scrambling is used for movement of constituents in the Mittelfeld, that is, in positions below the finite verb in V2 clauses.[46] Lechner (1998) argues that while reconstruction is possible in German from positions such as SpecCP, in scrambling chains reconstruction is not generally possible.[47]

Compatible with Lechners argument about the inability of scrambled DPs to reconstruct is the inability of *lauter* DPs to appear in scrambled positions. I believe the contrast in (232) below is representative. (233) shows that, with other DPs, scrambling is acceptable in the same context.[48]

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[46]I will follow this by assuming that movement into the Vorfeld, that is the specifier of CP, is not scrambling. This claim is supported by differences in the properties of the two kinds of movement. In certain instances, for instance, movement into the specifier of CP is allowed out of a finite clause, while scrambling in Mittelfeld positions is never allowed out of finite clauses, as illustrated in (i), from Müller and Sternefeld (1994, p. 332)

(i)   a.   Pudding$_i$ sagte sie [$_{CP}$ t'_i würde$_j$ [$_{IP}$ der Fritz t_i mögen t_j]]
            Pudding said she   would   the Fritz   like
            'Pudding, she said, Fritz would like.'
       b.   *weil   [$_{IP}$ Pudding niemand sagt [$_{CP}$ t'_i würde$_j$ [$_{IP}$ der Fritz t_i mögen t_j]]]
            because   pudding nobody said   would   the Fritz   like

[47]Lechner's account also connects the existence of weak readings to syntactic position, but does so by giving a special semantics (equivalent to existential closure) to determiners that have raised, and forces the raising for interpretation purposes. In scrambling positions, determiner raising is not available, hence blocking weak readings. Lechner's account however does not systematically address how to unify the strong and weak readings for the affected class of determiners, and hence only provides an answer to part of the question of weak and strong readings.

[48]The examples in (232) only illustrate that scrambling is possible; they are not equivalent in all respects but word order. (232b) for instance receies obligatory stress on the determiner *manchen*.

(232)   a.   …weil   das Wetter lauter Bauern die Ernte   vermiest hat.
             because the weather *lauter* farmers the harvest soiled   has.

          '…because the weather spoiled the harvest for a whole bunch of farmers.'

      b. *…weil lauter Bauern das Wetter die Ernte vermiest hat.

(233)   a.   …weil   das Wetter manchen Bauern die Ernte   vermiest hat.
             because the weather some   farmers the harvest spoiled has.

          '…because the weather spoiled the harvest for some farmers.'

      b. …weil manchen Bauern das Wetter die Ernte vermiest hat.

3.9   *Lauter* **DPs are obligatorily weak**

The previous sections should have supplied a number of data points illustrating that *lauter* DPs are quite restricted in their distribution. In particular, they seem unable to receive any of the so-called strong interpretations or appear in any of the syntactic positions associated with those interpretations. That is, in Milsark's terminology, *lauter* DPs appear to be obligatorily weak. Put in the context of proposals to the weak/strong ambiguity that rely on deriving the strong meanings in a compositional way from the combination of an unambiguous lexical entry (assumed to give rise to the weak meaning) and an environmental factor (e.g. a presupposition associated with a topical marker), *lauter* DPs are rather surprising. The presuppositions assumed to be the semantic effect of a topic marker in Jäger (2001b) for instance are quite benign, and purposefully so, as they are compatible with a wide range of DPs. If a DP is topic marked in Jäger's system, it is presupposed that there is a familiar individual, or an individual related to a familiar one via a contextual bridging relation, that falls under the extension of the nominal predicate. Technically, Jäger defines a presupposition operator δ,

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Both examples have a strong reading, (232b) has a partitive interpretation, (232a) a specific one.

where $\delta[P(x)]$ tests whether in every context (defined as a pair of a world and a partial function mapping discourse markers to individuals) under consideration a particular discourse marker (here x) is mapped to an individual in the extension of the predicate (here P). Non-ambiguity proposals to the weak/strong distinction are very appealing since a large class of DPs very systematically displays the various meanings discussed above in the same environments, making it less likely that the differing interpretations are the result of an unprincipled lexical ambiguity. Yet, as seen above, these accounts bring about the challenge to explain why *lauter* DPs don't seem to partake in the alternation. To begin exploring this question, I will mention a proposal by Chung and Ladusaw, which, I believe, makes more explicit the various contributions that indefinites make to the overall meaning of a sentence.

Often the proposals made in, and inspired by, Kamp's and Heim's work are referred to as *restricted variable* accounts, since they assign two functions to indefinites; that of introducing an individual marker, e.g. a variable, into the semantic representation and that of providing, via their nominal content, descriptive information about that individual, i.e. restricting the values that can be assigned to the variable.[49] Chung and Ladusaw (2004) make a proposal that makes explicit these two aspects that indefinites perform and separates them into two different compositional operations, *restrict* and *saturate*. The starting point for the restrict-and-saturate proposal is Frege's description of predicates as in some sense incomplete, or unsaturated. Chung and Ladusaw propose that indefinites that appear in a syntactic argument position to a predicate can either saturate one of its open positions, or restrict it by means of their nominal content without saturating it. While in many instances the two modes of composition will lead to the same truth-conditional meaning, there are a number of semantic

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[49]By 'nominal content' I mean to include modifiers of the head noun. Nominal content would be e.g. the denotation of the NP in DP theories.

differences between them. Chung and Ladusaw implement restrict, which models the weak or predicative meaning of indefinites, as a form of predicate modification. Chung and Ladusaw discuss some of the research on the semantic effects of noun incorporation structures, which could be seen as a syntactic structure that is specified for an interpretation by means of restrict. Under Chung and Ladusaws proposal, indefinites composed via restrict do not saturate the open argument position of the predicate they combine with, and hence allow for additional arguments to saturate this position. Whether this semantic possibility can be realized or not depends on the syntax of the language. Several languages with noun incorporating structures seem to allow for the kind of doubling that Chung and Laduaw's account allows (see e.g. Mithun, 1984). If an argument position restricted by an indefinite remains unsaturated inside the lower verbal projection, Chung and Ladusaw assume that an operation of existential closure will bind the open argument position and semantically saturate the predicate. This leads to the prediction that arguments composed by restrict will necessarily scope below any semantic operators that compose above the level of existential closure, e.g. negation.

Saturate on the other hand assumes that the indefinite's role of introducing an individual referent is prominent. An indefinite composed via saturate saturates an open argument position of the predicate. Chung and Ladusaw discuss a number of mechanisms that may underly saturate, and implement it as a version of the choice function proposal according to which an indefinite can combine its nominal property with a function that maps that property to one of the individuals in its extension. For each property there are of course as many choice functions as there are individuals in the property's extension, so it becomes a relevant question how a choice function is picked. Chung and Ladusaw follow proposals made by Reinhart (1997) and Winter (1997) according to which the choice function variable can be

existentially bound at any level in the representation. (For a brief discussion of other choice function proposals, see the discussion on specific readings on pages 114ff. above.) In contrast to the semantics proposed for restrict, the adopted choice function proposal allows for the indefinite to be interpreted with an apparent variety of scopal possibilities, depending on the site of binding of the choice function. Indefinites that are combined by saturate rather than restrict are thus expected to show a wider range of scope taking possibilities. In particular, they should be able to take widest scope.

The bulk of Chung and Ladusaw's monograph is dedicated to a detailed study of indefinites in Maori and Chamorro, which, Chung and Ladusaw argue, illustrate that lexical items can be specified for a mode of composition. The differing behaviors of the two Maori indefinite articles *he* and *tētahi* are captured by combining the DPs headed by them via restrict and saturate respectively. What is interesting is that in Chung and Ladusaw's proposal, we see a lexical differentiation of indefinites for specific modes of composition.[50] Given the large variety of indefinites we see within languages across the world, this is an interesting proposal. For Chung and Ladusaw then, the various behaviors of indefinites could be seen as a case of underspecification with respect to modes of (semantic) composition.[51] Lexical items like the indefinites investigated by Chung and Ladusaw, the German *lauter*, or the class of obligatorily strong DPs could then be seen as cases that are specified for a particular mode of composition.

3.9.1 Predicate nominals

Independent of Chung and Ladusaw's technical proposal, their approach highlights that DPs can be interpreted in a way that has so far been neglected in

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[50]How the connection between semantic composition principles and lexical items is established is left open.

[51]To which extend all interpretations of indefinites can be captured in this way is not clear to me at the moment.

the discussion, namely as purely modifying (or in their terminology, restricting) expressions. A potential instance of this interpretation, outside of the argument positions investigated by Chung and Ladusaw, has received some attention in the literature, namely the use of nominal phrases as predicating expressions, so called predicate nominals.

DPs found in there-be contexts in English can serve as predicate nominals with ease, as in the examples in (234) and (235) below. Examples with comparative and superlative numerals seem more restricted, though I believe that in instances where the cardinality of the subject referent is not immediately accessible, examples are quite natural, e.g. as in (235b-d).

(234)   a.   Felix is a cat.

   b.   Mary considers John competent in semantics and an authority on unicorns.   [Partee, 1987]

   c.   Wayne Rooney seems a man motivated only by vengeance and spite.

(235)   a.   These are cute cats.

   b.   These are two/many/a few/a lot of/twelve cute cats.

   c.   Those are at most/no more than ten cookies.

   d.   These are at least/more than/no less than a thousand ants.

Examples with typical strong DPs are available as well, though more limited.[52]

(236)   a.   *Mary considers the Boston Red Sox every attractive athlete.

   b.   *Wayne Rooney seems the man motivated only by vengeance and spite.

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[52]Higginbotham (1987, p. 51f.) notes the interesting contrast between (ia) and (ib) illustrated in (ii).

(i)   a.   John is everything I respect.
        b.   John is a lawyer I respect.

(ii)   a.   Everything I respect, John is.
        b.   *A lawyer I respect, John is.

(237) a. Those are your new neighbors.

　　　 b. These are all the problems we ever had.

　　　 c. ?That's every problem we ever had, right there.

　　　 d. ?This is every book we have.

Following Higgins (1973), there has been a lot of discussion as to whether there are multiple types of copula clauses, if so, what criteria distinguish between them, and, in turn, what their semantic characteristics are. Higgins distinguishes between predicational, specificational, identificational and equative copula clauses. Many authors have concluded that DPs in pre- and post-copula positions make different semantic contributions in the different sentence types. For an overview, see e.g. Mikkelsen (2011).

For the purposes at hand, I will limit my attention to typical predicative nominals as in the examples in (234), and possibly (235). Intuitively, the determiners in these cases could be treated as cardinality predicates without their existential contribution. Under an approach that treats determiner *a* as a generalized quantifier in argument positions, a second (semantically vacuous) lexical entry could be proposed, treating *a* as an identity function of predicate meanings, e.g. as in (238).

(238) a. $[\![a_{GQ}]\!] = \lambda P.\lambda Q.\exists x \in \{y | P(y)\}$ such that $Q(x)$

　　　 b. $[\![a_{PRED}]\!] = \lambda P.P$

A sophisticated proposal to that effect that does away with positing a lexical ambiguity can be found in Partee (1987). Partee argues for the naturalness of a typeshift BE (a type shift from DP quantifier types, e.g. $\langle\langle et\rangle t\rangle$ in an extensional system, to predicate types, e.g. $\langle et\rangle$), based on Montague's treatment of the verb *be*. In contrast to Montague, Partee argues that the BE typeshift is not the lexical denotation of the verb *be* (which Partee treats as a semantically vacuous function application / abstraction step), but freely available, which allows for an elegant

account of her coordination examples in (234b) above.

(239) $[\![\text{BE}]\!] = \lambda R_{\langle\langle et\rangle t\rangle}.\lambda z_e.R(\lambda y_e.y = z)$

(240) $[\![\text{BE}]\!]([\![\text{a}]\!]([\![\text{cat}]\!])) =$

$[\lambda R.\lambda z.R(\lambda y.y = z)]([\lambda P.\lambda Q.\exists x \in \{y|P(y)\} \text{ such that } Q(x)]([\![\text{cat}]\!])) =$

$[\lambda R.\lambda z.R(\lambda y.y = z)]([\lambda Q.\exists x \in \{y|y \text{ is a cat}\} \text{ such that } Q(x)]) =$

$\lambda z.[\lambda Q.\exists x \in \{y|y \text{ is a cat}\} \text{ such that } Q(x)](\lambda y.y = z) =$

$\lambda z.\exists x \in \{y|y \text{ is a cat}\} \text{ such that } x = z$

assuming that every individual is identical to itself, this is the characteristic function of the set of cats (which was assumed to be $[\![\text{cat}]\!]$).

The same mechanism can apply to definite DPs, as illustrated in (241).

(241)   a.   John is the king.

   b. $[\![\text{BE}]\!]([\![\text{the}]\!]([\![\text{king}]\!])) =$

   $[\![\text{BE}]\!]([\lambda P.\lambda Q.\exists x \in \{v|\forall y[P(y) \leftrightarrow y = v]\} \text{ such that } Q(x)]([\![\text{king}]\!])) =$

   $[\![\text{BE}]\!]([\lambda Q.\exists x \in \{v|\forall y[y \text{ is a king} \leftrightarrow y = v]\} \text{ such that } Q(x)]) =$

   $\lambda z.[\lambda Q.\exists x \in \{v|\forall y[y \text{ is a king} \leftrightarrow y = v]\} \text{ such that } Q(x)](\lambda y.y = z) =$

   $\lambda z.\exists x \in \{v|\forall y[y \text{ is a king} \leftrightarrow y = v]\} \text{ such that } x = z$

   again, assuming that every individual is identical to itself, this is the characteristic function of the singleton set containing the unique king if there is one, and of the empty set otherwise.

An account for coordination data with definites (as in 242 below) then follows as well. Under the assumption that coordination requires the coordinates to share their semantic type, the coordination data above provide evidence for a predicative denotation of DPs.

(242)   a.   She considered him smart and the secret leader of this group.

   b.   She considered him untrustworthy and the main suspect.

While the work of Partee gives an elegant proposal for predicative nominals under the proposal that DPs headed by *a* and *the* receive basic interpretations as generalized quantifiers, e.g. an existential interpretation for *a*, there is less explicit discussion of how the use of these DPs in predicative positions squares with the insights of the proposals of Kamp and Heim, and the proposals for deriving the varying interpretations of DPs discussed above. Moreover, and particular to the discussion at hand, I have argued above that *lauter* DPs in German only have a weak interpretation. This is of course not incompatible with the aspect of the type-shift mechanism discussed above, but may become problematic for the larger system of type-shifts advocated in Partee's work which contains a variety of type-shifts, among them also ones from predicative to individual types (e.g. Partee's THE and A type-shifts). Hence, Partee's proposal would have to be augmented with a way to explain why in this particular situation an available type-shift operation may not apply, or, if they can apply and derive only the weak meaning, how the proposal accounts for deriving the strong meanings in other cases.

A possible approach that could be taken in a Kamp/Heim style framework would be to treat the indefinite as any other indefinites and equate the introduced variable with the subject referent. A version of this is briefly considered in Kamp and Reyle (1993)'s explication of the DRT framework. Kamp and Reyle reject this idea based on data from Hebrew which show that the anaphoric abilities to the predicative NP are more restricted than those to the subject (pg. 268). Data from temporal modification may also show that an identification account along those lines is too simplistic. Neither of the examples in (243) expresses that the person who is (or was) the principal used to, but is no longer identical to the person referred to as my friend.

(243)   a.   The principal is not my friend anymore.

   b.   My friend is not the principal anymore.

The brief discussion above might have added some motivation for the idea that there is a truly predicative interpretation of a fairly large class of DPs. One way to think about the peculiar status of *lauter* DPs concerns their ability to introduce individual arguments. I propose that while many DPs may introduce an individual argument, *lauter* DPs may not, that is, they can only be used predicatively. An obvious question that arises from this concerns the interpretation of predicative DPs in argument positions then, that is, positions that are typically assumed to rely on an individual argument to saturate this position. One proposal by Chung and Ladusaw has been discussed above; below I want to briefly sketch another potential avenue that could be explored.

3.9.2 Predicates in argument positions

Crucially, the predicative interpretation of DPs does not seem to be connected to introducing individual arguments by reference or quantification, as has been assumed for all other interpretations of DPs discussed above. If it is not the DP itself that introduces an individual or an associated discourse marker, the question arises what else would be responsible for this. Chung and Ladusaw assume that it is either another DP, or an unselective existential quantifier. But these are not the only two logical possibilities. Another option would be to question the Fregean treatment of verbs as unsaturated functional expressions. This step has been taken, to some extent, for instance in Cresti (1995) and Krifka (1984).

Cresti (1995, p. 17) makes a proposal she calls 'Theta-Grid Saturation'. According to Theta-Grid Saturation, verbs do not start as unsaturated predicates, i.e. functions in need or arguments, but as complex, fully saturated object: functions that have their argument positions saturated by special unrestricted variables with labels according to their thematic function. A verb like sell, according to Cresti's proposal, starts out as a complete term like (244).

(244) $\llbracket \text{sell} \rrbracket = \text{sell}_w(\theta_{\text{AGT}}, \theta_{\text{TH1}}, \theta_{\text{GOAL}}, \theta_{\text{TH2}})$

Cresti combines verbs with their arguments via abstraction over the labelled variable at the location where the argument is introduced, that is, a tree like (245a) would be interpreted as in (245b).

(245) a. [VP tree with DP, V, DP, V, DP] b. [VP tree with DP, $\lambda\theta_1$, $\varnothing$, DP, $\lambda\theta_2$, $V(\theta_1,\theta_2,\theta_3)$, $\lambda\theta_3$, DP]
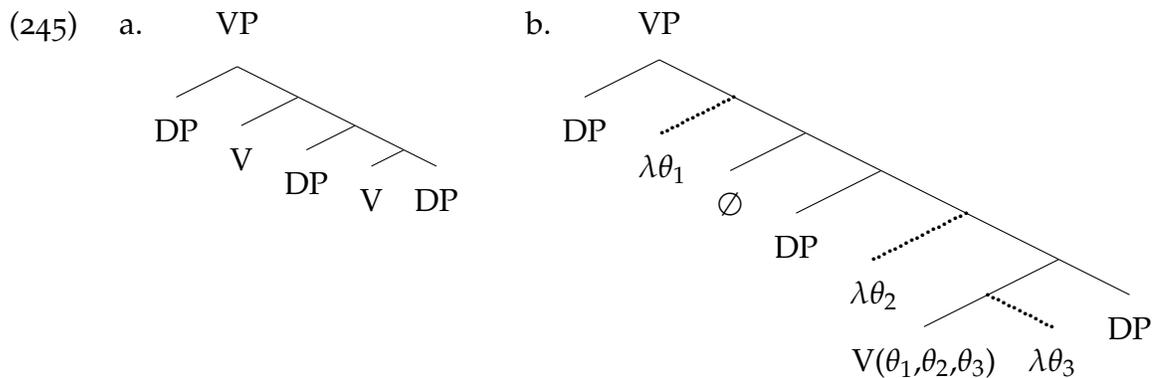
Krifka's proposal is only briefly introduced in Krifka (1984, p. 48f.). Krifka assumes argument positions of verbs bear a reference index furnished by the syntactic component. Argument DPs are co-indexed with these indices. DPs compose with verbs in one of three ways. If a DP is interpreted referentially, the interpretative component unifies the referent with the referential index on the relevant argument position. If a DP is quantificational, the referential index is abstracted over and the resulting predicate is combined with the quantificational DP via function application. Finally if a DP is interpreted predicatively, it serves as a secondary predicate, predicated over the same referential index.

Allowing the verb to introduce referential indices for its arguments in at least some cases seems potentially desirable also for cases of verbs with a syntactically absent argument that yet seem to entail the existence of some typical instance of an object, e.g. (246). Note also that in some cases a generalizing interpretation, and secondary predication are available, as e.g. in (247).[53]

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[53]For a potentially related, more thorough discussion, potential differences between different arguments of verbs and a way to look at psycholinguistic evidence bearing on the issue, see e.g.

(246) a. Peter ate an apple.

b. Peter ate.

(247) a. Peter eats organic.

b. Peter ate spicy for the first time today, and he liked it.

The suggestion I want to make here is the following. Following Krifka's suggestion discussed above, verbs introduce referential markers, and DPs have two ways of combining with the verb. If a DP introduces its own referential marker, it can combine by unifying the two. These are the DPs that can combine with a topicality marker, giving rise to a presupposition of the sort proposed by Jäger, and consequently exhibit the full range of interpretations discussed above. DPs headed by *lauter* in contrast never introduce referential markers. They are interpreted in the same way secondary predicates are, as additional predication over the referential marker associated with the verb. As DPs, they share the distribution of other argument DPs (rather than adjectival secondary predicates), but not their semantics. Since they do not introduce referential markers, they cannot introduce presuppositions about them, and hence do not receive strong interpretations.

Carlson and Tanenhaus (1988).

CHAPTER 4

ÜBERHAUPT

4.1   Introduction and background

This last chapter starts from a slightly different perspective than the two previous ones. I look at the semantic complexity argued to be inherent in the morphologically simple English determiner *any* and argue that it is plausible to assume that if we can conceptualize the semantic parts of this complex denotation independently they may be lexicalized independently in some language.[1] With that in mind, I discuss the German adverb *überhaupt* and argue that its purpose is to remove restrictions present in the context. I relate this to the mechanism of domain widening, assumed in several analyses of the English negative polarity item (NPI) *any*, and propose that *überhaupt* may be analyzed as a generalized domain widener, which has the freedom to appear in a variety of contexts, and to combine with items of different syntactic categories, removing restrictions across the board. The family of accounts to NPIs that I discuss below ties domain widening to a strengthening condition, and can account for the German data even in non-NPI licensing contexts. I thus take the German data to be support for this family of accounts. In the light of these data, the English NPI *any* can be regarded a special instance of domain widening morphologically tied to existential indefinites.

Below, I will summarize some background literature on negative polarity *any*, in particular what I take to be the core of the analyses that assume a mechanism of domain widening. The following main section turns to data from German,

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[1]Material in this chapter has been presented at WCCFL 25 and was published as Anderssen (2006). It appears here with only minor revisions.

involving the adverb *überhaupt*. I first present cases equivalent to the English *any* ones, and illustrate distributional similarities between phrases with *überhaupt* and *any*. Then I will turn to the main difference between *überhaupt* and *any*, namely that *überhaupt* does not contain an indefinite determiner, but rather merely combines with one, while, in contrast, the semantic complexity overt in the German data is hidden in the English monomorphemic *any*. I show that the morphological freedom *überhaupt* has allows it to combine with elements other than indefinite determiners. I argue that for all data involving *überhaupt*, its purpose can be intuitively characterized as removing contextual restrictions, and that the intuition behind the domain widening analysis carries over to give a coherent account of these data.

4.1.1   Negative polarity, domain widening, and strengthening

In English, NPIs like *ever* or *any* are restricted to certain contexts, for instance to the scope of negation, or the restrictor of a universal quantifier, though not its nuclear scope. (248) and (249) below illustrate this.[2]

(248)   a.   I hadn't ever been to Seattle before.

   b.   *I had ever been to Seattle before.

(249)   a.   Every friend of mine who had ever been to Seattle liked it.

   b.   *Every friend of mine who liked Seattle had ever been to it.

Several proposals have been made as to what unifies different NPI-licensing environments. While some approaches assume a syntactic feature shared by the licensing environment, e.g. *affective* or *negative* (Klima, 1964; Baker, 1970), others propose more algebraically oriented solutions. Ladusaw (1979), for instance,

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[2]For the discussion in this chapter, I will set aside the free choice use of *any* and its relation to the negative polarity use.

characterizes the environments by their entailment patters, calling the NPI licensing environments *downward entailing*, as defined in (250) below.[3]

(250)   An operator Op is downward entailing (DE) if and only if for any arguments X and Y, $X \subseteq Y \rightarrow Op(Y) \subseteq Op(X)$. It is upward entailing if and only if $X \subseteq Y \rightarrow Op(X) \rightarrow Op(Y)$. It is non-monotone otherwise.

In later proposals, the distribution of NPIs has been linked to their semantic contribution (Kadmon and Landman, 1993; Krifka, 1995; Lahiri, 1998; Chierchia, 2004). These proposals have investigated why NPIs seem to occur with ease in DE environments rather than elsewhere. They share the idea that NPIs are subject to a *strengthening requirement*, possibly imposed by a particular assertion operator related to emphatic items (Krifka, 1995), or by a particular closure operation over widened domains (Chierchia, 2004). Roughly speaking, an NPI under these views is compared to alternative items which it introduces and its use is licensed if and only if the proposition containing the NPI is semantically stronger than the corresponding propositions which involve the alternative items.[4] Characterizing environments in terms of their entailment relations, in combination with the proposed semantics for each NPI, can explain how choosing an NPI over a regular item can lead to information gain in one environment while it might lead to a relative loss of information in an environment with opposite entailment pattern. Kadmon and Landman's example in (251) below serves as an illustration of this.

(251)   a.   I have (*any) potatoes.

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[3]Following the work by Ladusaw, other semantic characterizations of environments have been proposed, such as anti-morphic (AMo), anti-additive (AA), or non-veridical(NV). These environments are related, and are supposed to account for different subtypes of NPIs: AMo $\subseteq$ AA $\subseteq$ DE $\subseteq$ NV (see for instance van der Wouden, 1994, sec 1.4).

[4]Where semantic strength is defined f.i. as in Krifka (1995, p. 219) recursively for all types that "end in t" (also Partee and Rooth, 1983): α is semantically stronger than β ($\alpha \subseteq \beta$), (a) if α, β are of type t, then $\alpha \subseteq \beta$ iff $\alpha \rightarrow \beta$, or (b) if α, β are of type $\langle \sigma, \tau \rangle$, then $\alpha \subseteq \beta$ iff for all γ of type σ: $\alpha(\gamma) \subseteq \beta(\gamma)$. Krifka uses the subset symbol to denote semantic strength, and his definition mirrors the intuitive connection. In the rest of this paper I will use the symbol $\subseteq$ for the familiar subset relation.

b. I don't have (any) potatoes.   [Kadmon and Landman, 1993, p. 353]

The widening/strengthening proposals assume that a DP headed by *any*, for instance *any potatoes*, is an alternative to a plain indefinite DP, like *potatoes*. Both indefinite DPs share a semantic core, existential quantification, but they differ in that *any* additionally invokes widening of the domain restrictor of the existential quantifier.[5] The meaning of (251) above can be modeled using the logical representation in (252).

(252) a. $(\exists x_{\in D})$ potato$(x) \land$ have$($ speaker$_c, x)$

b. $\neg (\exists x_{\in D})$ potato$(x) \land$ have$($ speaker$_c, x)$

What differs in these translations depending on the use of *any* is the content of the quantifier domain, *D*. Without *any*, *D* corresponds to the regular, contextually supplied domain of individuals, which contains all and only individuals standardly under consideration in the current utterance situation for the particular quantifier. With respect to (251), this domain might for instance include regular cooking potatoes, but not decorative ones, or little crumply ones. When using *any* as a determiner, it is conveyed that this domain should be extended in some way to include potatoes not usually under consideration. Importantly, the widened domain corresponding to the *any* quantifier then is a superset of the domain of the alternative plain existential quantifier.

Since the alternative sentences differ only in their quantifier domains, with one domain always being a subset of the other, there is an entailment relation between the two corresponding propositions. In the positive context in (251a), the proposition corresponding to the *any* sentence will be entailed by the proposition corresponding to the plain indefinite sentence, and hence the strengthening condition will not be satisfied. In the negative context in (251b) however, the entailment

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[5]On quantifier domain restrictors see e.g. Westerståhl (1984); von Fintel (1994); Stanley and Szabó (2000); Martí (2003).

pattern is reversed, the use of *any* will lead to a stronger statement, and is correctly predicted to be available. Abstracting away from the particular example, this is illustrated again below in (253).[6]

(253)   Where $D \subseteq D'$, for any P, Q,

    a. $(\exists x_{\in D}) \, P(x) \wedge Q(x)$ entails $(\exists x_{\in D'}) \, P(x) \wedge Q(x)$

    b. $\neg(\exists x_{\in D'}) \, P(x) \wedge Q(x)$ entails $\neg(\exists x_{\in D}) \, P(x) \wedge Q(x)$

In the remainder of this paper, I set aside two relevant topics. First, I will say nothing about whether or how all contexts that license NPI *any* can be subsumed under the notion of downward entailment. For the comparisons between *überhaupt* and *any* in the following section, I will simply take *any* licensing contexts, and show that *überhaupt* patterns alike. Second, I will not be concerned with the question of where the strengthening condition should be situated. Several speakers of German have expressed that *überhaupt* seems to add emphasis to a statement, which could suggest that these sentences should be treated as emphatic assertions with a particular assertion operator containing the strengthening condition, as argued for in Krifka (1995).[7] I am sympathetic to this particular option since *überhaupt* patterns more closely with *any ... at all* then with *any* alone.[8]

4.2   Widening quantifier domain restrictions

In this section I start to investigate the German adverb *überhaupt*. I chose the German case because of the resources available to me, though a preliminary survey by Hagit Migron (Migron, 2005) indicates that similar items seem to be available in a wide variety of languages.

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[6]From Chierchia (2004, pp. 71f.).
[7]However, see Chierchia (2004) for a more local approach and arguments for it.
[8]See also Krifka (1995, pp. 233ff.) on *at all*.

The following subsection shows cases where *überhaupt* and some form of indefinite DP act like *any* DPs in English, illustrating that the assumed semantic complexity hidden in the monomorphemic *any* is morphologically transparent in German. I propose that *überhaupt* should be thought of as corresponding to the domain widening part of *any*, while the indefinite DP contributes a regular existential meaning.

4.2.1 *Überhaupt* and indefinite DPs

The following examples illustrate the parallels between German *überhaupt* and English *any*. (254) below are translations for Kadmon and Landman's examples in (251). As with *any*, *überhaupt* can be used in a DE context, such as (254b), but not in the corresponding positive case in (254a).[9]

(254)   a.   Ich habe (*überhaupt) Kartoffeln.
            I   have *überhaupt*   potatoes
            'I have potatoes.'

       b.   Ich habe (überhaupt) keine Kartoffeln.
            I   have *überhaupt*   no   potatoes
            'I don't have (any) potatoes (at all).'

The examples in (255) below illustrate the same point. *Überhaupt* here combines with an existential indefinite pronoun *etwas* (*something*), to yield a meaning analogous to English *anything*. Again, *überhaupt* can be used in the scope of a DE element, like rarely, but not in the contrasting non-DE context.

(255)   a.   Von solchen Leuten kann man selten (überhaupt) etwas
            from such   people can   one rarely *überhaupt*   something
            lernen.
            learn.

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[9]These examples are slightly complicated by the fact that the German negative indefinite *kein* is not indicative of the semantic scope of negation, but agrees with a negative operator with wider scope (see Penka and von Stechow, 2001).

'It's rare that you can learn anything at all from such people.'

b. Von solchen Leuten kann man häufig (*überhaupt) etwas
from such   people can   one often   *überhaupt* something
lernen.
learn.
'You can often learn something from such people.'

The combination *überhaupt etwas* is furthermore licensed in various other *any* licensing contexts, for instance in antecedents of conditionals, in questions, or when embedded under certain verbs, as illustrated in (256a-d).

(256) a. Falls du (überhaupt) etwas   sagst, überleg   dir   gut
if   you *überhaupt*   something say, think about to you well
was.
what
'If you say anything at all, think twice what you will say.'

b. Hast du (überhaupt) etwas   zu trinken im Haus?
have you *überhaupt* something to drink   in the   house
'Do you have anything to drink at all in the house?'

c. Ich hoffe, dass (überhaupt) etwas   passiert.
I   hope that *überhaupt* something happens.
'I hope that anything will happen at all.'

d. Ich fürchte/denke/glaube, dass (*überhaupt) etwas   passiert.
I   fear/think/believe   that *überhaupt* something happens.
'I fear/think/believe that something will happen.'

In the domain widening analyses of English *any*, *any* is assumed to be semantically complex, containing an indefinite and a domain widening element. This complexity however is not morphologically visible in English. In the corresponding German examples, on the other hand, we can identify the familiar indefinite element independently. I will therefore examine the hypothesis that *überhaupt* corresponds to the domain widening element. Under this hypothesis, the semantic complexity hidden in English any would be morphologically overt in German. In

the next paragraph, I summarize one particular analysis of *any*, and show how it can be adapted for the German cases.

Chierchia (2004) proposes that *any* differs from other existential quantifiers in that it is interpreted with respect to a widened domain. He further proposes that no particular widened domain should be preferred, and hence makes the variable over widened domains subject to universal closure at a higher level. For Kadmon and Landman's example in (251), Chierchia would assume a representation as in (257).[10],[11]

(257) $(\forall D'_{\supseteq D}) \neg (\exists x_{\in D'})$ potato$(x) \wedge$ have(speaker$_c, x$)

This representation can be derived for the German cases as follows. The variable introducing the contextual restriction on the quantifier needs to be made available to object language operators. Some mechanism for this is needed independently, since various researchers have shown that these variables can be bound by object language expressions (Stanley and Szabó, 2000; Martí, 2003). I will use an operation as defined in (258) to make the variable available for binding, but other ways could be chosen to achieve the same. *H* here represents a quantifier with a contextual domain restriction *C*. Semantically, this merely amounts to abstraction over the variable, in order to make it available for modification or binding by object language expressions such as *überhaupt*.

(258) $\lambda P_{\langle e,t \rangle}.\lambda Q_{\langle e,t \rangle}.H_C(P)(Q) \Rightarrow \lambda C_{\langle e,t \rangle}.\lambda P_{\langle e,t \rangle}.\lambda Q_{\langle e,t \rangle}.H_C(P)(Q)$

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[10] Chierchia implements quantification over domains that are supersets of the contextually supplied domain by proposing that *any* introduces a variable over domain-widening functions (*g* below) that has to be universally bound. As far as I can see, both quantifying over domains larger than that contextually supplied one and quantifying over domain-expansion functions that apply to the contextually supplied domain will lead to the same result ($\{D' \mid \exists g.D' = g(D)\} = \{D' \mid D' \supseteq D\}$ by definition of *g* as a variable ranging over all domain widening functions, i.e. functions that map a domain *D* to a domain *D'* such that $D' \supseteq D$). Hence, I will simply use quantification over domains in the examples here.

[11] Chierchia assumes that no quantification is possible without contextual restriction, and explicitly restricts the closure operator as well. For ease of reading, I will omit the contextual restriction variable on the closure operator in the representations.

Überhaupt can then be modeled as in (259). It takes a shifted quantifier *H* as its first argument and returns a meaning of the type of regular generalized quantifiers.[12] The resulting construction exhibits the same context dependency as the corresponding plain quantifier, which correctly predicts that the free domain variable (here *C*) is still available for binding by a higher operator. Under these assumptions, the representation in (260) can be derived for the German translation of Kadmon and Landman's (251). As desired this corresponds to (257).

(259)　$[\![\text{überhaupt}]\!] = \lambda H_{\langle et, \langle et, \langle et, t \rangle \rangle \rangle}.\lambda P_{\langle e, t \rangle}, \lambda Q_{\langle e, t \rangle}.\forall C'_{\supseteq C}.H(C')(P)(Q)$

(260)　$(\forall C'_{\supseteq C}) \neg (\exists x_{\in C'})\ \text{potato}(x) \wedge \text{have}(\text{speaker}_c, x)$

4.2.2　*Überhaupt* and universal quantifiers

Überhaupt, being a free morpheme, is able to combine with elements other than indefinite determiners. The following data in (261) illustrate another case where *überhaupt* can be used. Here, *überhaupt* combines with the universal quantifier *jede* (*every*).

(261)　a.　Meine Mutter kennt (überhaupt) jeden　　in Mindelheim.
　　　　　my　　mother knows *überhaupt*　everybody in Mindelheim
　　　　　'My mother knows (absolutely) everybody in Mindelheim.'

　　　　b.　Meine Mutter kennt nicht (*überhaupt) jeden　　in Mindelheim.
　　　　　my　　mother knows not　*überhaupt*　everybody in Mindelheim
　　　　　'My mother doesn't know everybody in Mindelheim.'

In contrast to classical NPI licensing accounts, the family of accounts assumed here, where domain widening is licensed under strengthening, immediately predicts the observed pattern, as the entailments in (262) hold; that is, domain

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[12]The way in which *überhaupt* combines with the quantifier meaning is similar to items like English *almost*.

widening leads to strengthening in the non-negative environment, but not in the negative one.

(262)   Where $D \subseteq D'$, for any P, Q,

    a. $(\forall x_{\in D'})\, P(x) \to Q(x)$ entails $(\forall x_{\in D})\, P(x) \to Q(x)$

    b. $\neg(\forall x_{\in D})\, P(x) \to Q(x)$ entails $\neg(\forall x_{\in D'})\, P(x) \to Q(x)$

The compositional analysis given for the existential cases in the previous subsection extends straightforwardly to the universal case above. The fact that NPI *any* is restricted to downward entailing contexts is then merely an accident of its morphological ties to the existential quantification.

4.3   Removing restrictions cross-categorically

As an adverb, *überhaupt* does not only combine with DPs, but also with phrases of other categories, as discussed in the following sections. In all these cases, *überhaupt* removes restrictions present in the context. I show how an account in terms of domain widening might capture this, and account for distribution and meaning of *überhaupt*.

4.3.1   Modifying comparison classes

Gradable adjectives are sensitive to contextual information as well, as illustrated by examples like (263) below.

(263)   The Mars Pathfinder mission is expensive.   [Kennedy, 1997, p. 8]

(263) may be false in some contexts, for instance when considering various space missions so far, and true in others, for instance when comparing objects that we deal with on a regular basis. One family of accounts to positive gradable adjectives has been making use of contextually supplied comparison classes (see

for instance Klein, 1980). Comparison classes are defined as sets of objects by which some standard of comparison is determined that will serve to partition the ordered domain of the adjective into those objects that lie above the standard and those that don't. For the example above, for instance, the objects in the domain of expensive are ordered by their price, say as in (264a). For illustration, we may assume that the standard value corresponds to the median price of the comparison class. If (263) is evaluated with respect to the comparison class in (264b), it is evaluated as true, since the Mars Pathfinder mission lies above Kyle's Mercedes on the scale in (264a). If however the comparison class in (264c) is considered, (263) comes out false as the Mars Pathfinder mission lies below the Mars Phoenix mission on (264a).[13]

(264) a. $\langle \ldots$, this pen, $\ldots$, my cheap bookshelf, $\ldots$, my friend's A/C, $\ldots$, next year's textbooks, $\ldots$, Kyle's Mercedes, $\ldots$, that guy's HumVee, $\ldots$, AirForce One, $\ldots$, the Mars Pathfinder Mission, $\ldots$, a manned Mars mission, $\ldots \rangle$

       b. {this pen, my friend's A/C, *Kyle's Mercedes*$_{median}$, AF One, the Mars Pathfinder mission}

       c. {Mars Pathfinder, Deep Impact, *Mars Phoenix*$_{median}$, Mir, manned Mars mission}

Assuming that comparison classes are contextually supplied arguments of a kind rather similar to quantifier domain restrictions (see again Stanley and Szabó, 2000, pp 233f.), it fits well into the picture drawn of *überhaupt* that it can grab hold of these arguments as well. (265) below illustrates a case in favor. (265b) says that, in contrast to (265a), Richard is tall not only for somebody who has not yet grown up, but that he is quite generally tall.

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[13]For a critical, more detailed discussion and references see Kennedy (1997, pp. 88ff.).

(265) a. Richard ist ganz schön groß für einen noch nicht Ausgewachsenen.
           Richard is quite   tall for a   yet   not grown-up
           'Richard is quite tall for somebody who is still growing up.'

      b. Richard ist überhaupt ganz schön groß.
           Richard is *überhaupt* quite   tall
           'Richard is quite tall in general.'

To account for this, the variable over comparison classes needs to be available to *überhaupt*, which can then in turn quantify over it. As in the quantifier cases above, this can be achieved simply by making available the contextual domain variable, as in (266) and consecutively quantifying over it, as in (267).

(266) $\lambda x_e.f_C(x) \Rightarrow \lambda C_{\langle e,t \rangle}.\lambda x_e.f_C(x)$

(267) $[\![\text{überhaupt}]\!] = \lambda H_{\langle et,et \rangle}.\lambda x_e.\forall C'_{\supseteq C}.H(C')(x)$

The example in (265b) above then is translated as (268) below.

(268) $(\forall C'_{\supseteq C}).\text{tall}(C')(r)$, with C and C' being variables over comparison classes.

Since the threshold values corresponding to different comparison classes are ordered, we also have an ordering of the comparison classes. This translates into an ordering by semantic strength. In the case above, if the comparison class is widened to include people above the height of not yet grown-ups, the relevant standard will rise, and the resulting proposition will entail the one with the smaller comparison class, thus licensing the use of domain widening.

In addition, this account predicts that in some cases where a comparison class that already imposes a high standard value is widened, the result will be odd. This prediction is born out as illustrated by examples like (269), where *sogar* (*even*) marks the statement as unlikely. As noted by Krifka (1995, pp. 227f.), in the case of ordered alternatives, there is a connection between semantic strength and likelihood, with the least likely alternative being semantically strongest. Hence

if *sogar* marks a particular comparison class as unlikely, we will have entailment relations between the alternative propositions, and the oddity is explained.

(269) Sogar für einen Basketballspieler ist er (#überhaupt) ganz schön groß.
       even for a   basket ball player is he *überhaupt*   quite   tall
       'He's quite tall, even for a basket ball player.'

4.3.2   Contextual restrictions on verbal domains

A further case where *überhaupt* can remove contextual restrictions is constituted by data in which verbal domains have been restricted in the context, for instance by using domain adverbs, as illustrated in (270).

(270) a. A: Politisch   war die Entscheidung eine Dummheit.
              politically was the decision   a   stupidity
           'A: The decision was stupid, under a political perspective.'

       b. B: Die Entscheidung war überhaupt eine Dummheit.
              the decision   was *überhaupt* a   stupidity
           'B: The decision was stupid under any perspective.'

In this context, (270b) without *überhaupt* would have been an infelicitous reply to speaker A, since A had already established that the decision was stupid. However with *überhaupt*, speaker B indicates that the decision was stupid not only under the restrictions imposed by speaker A, but very general – a stronger statement.[14]

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[14]It is interesting to note that *überhaupt* seems to be felicitous when removing restrictions imposed by a previous domain adverb, as example (ia) shows, but not for instance with adverbs of manner, as in (ib). This may connect with observations relating domain adverbs to comparison classes (see Morzycki, 2005).

(i) a. Er hat die Straße vorsichtig überquert.
         He has the street carefully   crossed
         'He crossed the street carefully.'
     b. #Er hat die Straße überhaupt überquert.
         He has the street *überhaupt* crossed
         'He crossed the street in general.'

It is harder to see in these cases what the relevant domain restriction is. To account for them, I propose that the domain widening that *überhaupt* does here, is by way of removing a restriction that limits the set of events denoted by the verb, such as the one introduced by the domain adverb above.

An account for an item similar to *überhaupt* has been given in Krifka (1995), building on a proposal of David Lewis' outlined in the 1972 appendix to General Semantics (Lewis, 1970). Lewis is concerned with context dependency of vague and gradable adjectives, and proposes to interpret them with respect to a delineation coordinate in the context vector. He then also extends this account to other expressions of vagueness, for instance 'in some sense'. Lewis calls "the contemporary idiom 'in some sense' [...] an S/S related to the delineation coordinate" and proposes to analyze 'in some sense' roughly as in (271).

(271)   'in some sense' ϕ is true at a context i iff ϕ is true at some delineation-variant i' of i.

Krifka (1995) builds on this analysis for his analysis of the English expression *at all*. He interprets Lewis' delineation coordinates as standards for the strictness of interpretation of lexical items. At all then is treated as indicating a lowered standard of interpretation, which, combined with the strengthening condition, accounts for its distribution.

This account stands in a close relation to domain widening as outlined above, in that lowering the interpretation strictness of a verb will mean to widen the set of events in its denotation. The distributional restrictions can follow in a similar manner, though the distribution of *überhaupt* seems to be wider than that of *at all* for most dialects of English, indicating that the ability to target different restrictions might differ for the two items.

4.3.3 Targeting conversational backgrounds

A last use that illustrates the flexibility of *überhaupt*, but which I will not be able to do justice here, relates it to conversational backgrounds. König (1983) characterizes this use of *überhaupt* as targeting the presuppositions for a contextually given event (p. 168). He illustrates that with an example similar to the following one.

(272) A: Du hast dir   von Fritz viel Geld   geliehen.
           you have to you from Fritz much money borrowed
       A: 'You borrowed a lot of money from Fritz.'

(273) a. B: Ich habe mir   überhaupt kein Geld   von Fritz geliehen.
               I   have to me *überhaupt* no   money from Fritz borrowed.
           B: 'I didn't borrow any money from Fritz at all.'

       b. B': Ich kenne Fritz überhaupt nicht.
               I   know Fritz *überhaupt* not.
           B': 'I don't even know Fritz.'

In a context where (272) is uttered, the speaker could respond with (273a), stating that (272) is not true, because the speaker did in fact not borrow any money at all from Fritz. What is under debate here is the amount of money borrowed, and (273a) states that, even considering small amounts of money, the speaker didn't borrow any. This falls under the category of examples where *überhaupt* combines with an existential in downward entailing contexts, as discussed in the beginning of the previous section. If the speaker however responded with (273b), the discourse would still be felicitous, though no longer regarding the amounts of money borrowed. Instead the speaker would have stated that (272) didn't even stand a chance of being true, since some pre-condition for borrowing money, namely knowing that lender, has not been satisfied.[15]

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[15]In the example above, the main sentence accent lies on *kenne*, rather than on *überhaupt* as in most other cases discussed. This is characteristic of many examples in this category. In general, pitch accent seems to be used to disambiguate ambiguous readings of *überhaupt*. These observations

There is an intuitive connection between these items and the ones discussed above, through regarding presuppositions as restrictions on the discourse. *Überhaupt* can then be thought of as removing these restrictions, thus widening the context set. However, this case of domain widening must be handled with greater care than the previous ones. Universally quantifying over all widened context sets would, for instance, be clearly inappropriate in this case, as it would effectively clear the common ground. Rather, *überhaupt* selectively removes some proposition that is prominent in the discourse from the common ground. While this fits the intuition behind the proposal above, investigating the details and modifying the implementation or the proposal so that it can capture the data discussed here is left open for future research.

4.4 Summary and open ends

I have argued that the German adverb *überhaupt* is an item that modifies the denotation of expressions it combines with by removing restrictions present in the context. I have related this to the notion of domain widening proposed in recent accounts of negative polarity items and have shown that extending these accounts to the *überhaupt* data not only captures the use of *überhaupt* with existential quantifiers in downward entailing contexts, but also correctly captures its availability with universal quantifiers in upward entailing contexts, something that traditional accounts of NPIs could not have captured. Further, I have shown that *überhaupt* can modify items of diverse syntactic categories, in each case removing restrictions on those items present in the context. I take this to be an argument for the existence of these frequently covert restrictors at the object

warrant a more careful investigation, but will have to be set aside for the purposes of this paper.

(i)   B': I KENne Fritz überhaupt nicht.   (ii)   B": I kenne Fritz überHAUpt nicht.
        I know   Fritz *überhaupt* not   I know Fritz *überhaupt*   not
        B': 'I don't even know Fritz.'   B": 'I don't know Fritz at all.'

language level.

Several arguments have been presented against accounting for the contextual restrictions discussed here in terms of domain restricting variables over sets of individuals in Kratzer (2004). None of these arguments have been taking into account here. Kratzer convincingly argues that an account that treats domain restrictions through situation variables avoids several of the problems that accounts using properties of individuals face. Intuitively, widening a domain as conceptualized here would correspond to considering a larger situation, however it is left for further exploration to which extend this intuition can be made precise.

I could also not investigate several interesting properties of *überhaupt*, in particular details of its syntax, as well as its relation to intonation and pitch accents. Also the connection drawn in Krifka (1995) to emphatic particles and emphatic assertion has only been alluded to at this point. Furthermore it would be interesting to investigate how or whether different domain restrictions present in a sentence interact, and whether *überhaupt* can operate on multiple restrictions, or partially remove restrictions. Finally, as indicated in the last section, more pragmatic uses of *überhaupt*, relating to propositions presupposed in the context, provide a variety of data that could only partially be taken into account at this point.

EXPERIMENTAL MATERIALS

a. quantified sentence   followed by average judgment by item
b. referential sentence   in order a-c, b-c, a-d, b-d
c. non-accidental continuation (q./non-a., q./a., r./non-a., r./a.)
d. accidental continuation

(274) a. Auf Teneriffa musste jeder Urlauber / an der Rezeption / seinen Buchungsbeleg vorweisen.
       b. In diesem Sommerurlaub musste unser Vater / an der Rezeption / seinen Buchungsbeleg vorweisen.
       c. Dadurch konnte er vom Hotelpersonal / sofort das richtige Zimmer / zugewiesen bekommen.
       d. Er hatte sich / bei der Buchung zwei Monate zuvor / für dieses Hotel entschieden.

1.83, 2.3, 2.83, 2.2

(275) a. Jeder Ausbilder / erkennt durch diesen Bericht / Stärken und Schwächen seiner Lehrlinge.
       b. Biancas Ausbilder / erkennt durch diesen Bericht / Stärken und Schwächen seiner Lehrlinge.
       c. Dadurch kann er / vorhandene Probleme / im Lehrgespräch gezielt ansprechen.
       d. Seit kurzem hat er / jedoch keine Lust mehr / die Berichte zu lesen.

1, 2.17, 3.33, 2.67

(276) a. Das neue Wahlgesetz / gibt jedem Wähler / nur eine Stimme.
       b. Das neue Wahlgesetz / gibt meinem türkischen Freund / nur eine Stimme.
       c. Er muss sich daher / genau überlegen, / wie er sie einsetzt.
       d. Er glaubt, / dass das garnicht / so schlecht ist.

1.17, 2, 4, 1.5

(277) a. Jeder Verkehrsteilnehmer muss sich / an die Verkehrsregeln halten, / auch wenn sie ihm unsinnig erscheinen.
       b. Dein Freund Klaus muss sich / an die Verkehrsregeln halten, / auch wenn sie ihm unsinnig erscheinen.
       c. Sonst kann er / mit subjektiven Argumenten / deren Übertretung rechtfertigen.
       d. Er besitzt zwei Autos / mit denen er / gerne schnell fährt.

3.33, 3.33, 4.33, 1.83

(278)   a.   Der Arbeitgeber rechnet heute / bei jeder jungen Bewerberin / mit einem späteren Schwangerschaftsurlaub.

         b.   Der Arbeitgeber rechnet / bei dieser jungen Bewerberin / mit einem späteren Schwangerschaftsurlaub.

         c.   Daher wird sie / bei gleicher Qualifikation / schlechter bewertet als ein männlicher Mitbewerber.

         d.   Im Vorstellungsgespräch hatte sie / ihren Kinderwunsch / deutlich zum Ausdruck gebracht.

1.5, 1.67, 2.67, 1.33

(279)   a.   Der Firmenchef hat / für jedes neue Computerprogramm / einen hohen Preis bezahlt.

         b.   Der Firmenchef hat / für das neue Computerprogramm / einen hohen Preis bezahlt.

         c.   Er wird es daher / möglichst effizient / einsetzen.

         d.   Er hatte es / erst vor zwei Monaten / bestellt.

2.5, 1, 3.33, 2

(280)   a.   Jeder Staat, / der Atomenergie nutzt, / gefährdet das Leben aller Menschen.

         b.   Der Irak gefährdet / durch die Nutzung von Atomenergie / das Leben aller Menschen.

         c.   Daher sollte er / beim Bau weiterer Produktionsstätten / sehr genau Nutzen und Risiken abwägen.

         d.   Ausserdem betreibt er / in den meisten Fällen / veraltete Produktionsstätten.

1.5, 2.33, 2.17, 2.5

(281)   a.   Jeder Schriftsteller / muss den ursprünglichen Widerstand / seiner Leser brechen.

         b.   Der Schriftsteller Grass / muss in diesem Buch / den ursprünglichen Widerstand seiner Leser brechen.

         c.   Er muss den Leser / in seinen Bann / ziehen.

         d.   Er hatte vor kurzem / zwei erfolglose Romane / veröffentlicht.

1.83, 1.17, 3.67, 2.17

(282)   a.   Jede Verkäuferin / versucht die Kunden / zum Kauf zu bewegen.

         b.   Diese Verkäuferin / versucht die Kunden / zum Kauf zu bewegen.

         c.   Daher sagt sie / oft Dinge, / die nicht ganz den Tatsachen entsprechen.

         d.   Sie konnte schon als Kind / ihre Eltern / oft von etwas überzeugen.

1.67, 2.33, 3, 1.83

(283)   a.   Jeder Einwand / wurde / sehr ernst genommen.
       b.   Dieser Einwand / wurde / sehr ernst genommen.
       c.   Er ist / von mindestens drei Gutachtern / geprüft worden.
       d.   Er ist / von einer sehr bekannten Person / geschrieben worden.

2.33, 1.67, 3.6, 2.5

(284)   a.   Jeder Landrat / möchte gerne / seine Position halten.
       b.   Gerhard Schröder / möchte gerne / seine Position halten.
       c.   Daher nutzt er / wann immer möglich / seine Beziehungen aus.
       d.   Er ist jetzt / seit über vier Jahren / in dieser Position.

1.83, 1.6, 3.33, 2.33

(285)   a.   Jeder Hausmeister / trägt einen grossen Schlüsselbund / mit sich herum.
       b.   Unser Hausmeister / trägt immer einen grossen Schlüsselbund / mit sich herum.
       c.   Er hat / damit Zugang / zu allen Räumen.
       d.   Er hat / auch schon seit einigen Jahren / graue Haare.

2, 1, 4, 2.67

(286)   a.   Jeder Mitarbeiter / ist für die Einhaltung der Firmengrundsätze / selbst verantwortlich.
       b.   Peter fühlt sich / für die Einhaltung der Firmengrundsätze / selbst verantwortlich.
       c.   Wenn er eine Unkorrektheit bemerkt, / ist er daher verpflichtet, / seine Vorgesetzten zu informieren.
       d.   Wenn er in die Oper geht, / trifft er dort oft Kollegen, / die das anders sehen.

1.83, 1.83, 4.17, 2.33

(287)   a.   Jeder Patient, / der die Diagnose Alzheimer gestellt bekam, / fiel in ein tiefes Loch.
       b.   Mein Kollege Frank, / der die Diagnose Alzheimer gestellt bekam, / fiel in ein tiefes Loch.
       c.   Er wurde daher schnell / in ein psychologisches Betreuungsprogramm / überwiesen.
       d.   Er hatte erst im Januar / seinen fünfzigsten Geburtstag / gefeiert.

2.83, 2, 4, 1

(288)   a.   Jeder unserer Patienten, / der sich im letzten Jahr ein Bein brach, / hatte Ärger mit der Krankenversicherung.

b. Mein Freund Christian, / der sich im letzten Jahr ein Bein brach, / hatte Ärger mit der Krankenversicherung.
c. Er musste sich deswegen / mit viel Papierkram / herumschlagen.
d. Er hatte aber / auch schon vorher / viel Pech mit Versicherungen.

2.67, 1.67, 2.5, 2.33

(289) a. Jedes Buch, / das auf dem Regal stand, / ist heruntergefallen.
b. Mein Lieblingsbuch, / das auf dem Regal stand, / ist heruntergefallen.
c. Es ist / dabei / beschädigt worden.
d. Es ist / ein grosses und schweres / Buch gewesen.

3.5, 1.33, 4, 2

LAUTER VORFELD SUBJECTS

(290)   Die Holzhäuser   sind von der Walliser   Sonne braungebrannt, und
         The wood houses are   of   the Wallisian sun   brown burned, and
         lauter schneebedeckte Hörner bilden die sehenswerte
         lauter snow covered   horns   make   the see worthy
         Hintergrundkulisse: Wilerhorn, Bietschhorn, Breithorn, Mechthorn,
         back drop: Wilerhorn, Bietschhorn, Breithorn, Mechthorn,
         Aletschhorn, Fußhörner, Wannenhorn und noch einige Hörner mehr.
         Aletschhorn, Fußhörner, Wannenhorn and then   some   horns   more
         'The wooden houses are tanned by the Wallisian sun, and a whole lot of
         peaks form the picturesque back drop: the Wilerhorn, the Bietschhorn, the
         Breithorn, the Mechthorn, the Aletschhorn, the Fußhorns, the Wannenhorn
         and then some more horns.'

(291)   Plötzlich   kitzelt ihn   ein schwerer säuerlicher Geruch in der Nase, er
         Suddenly tickles him a   heavy   sourly   smell   in the nose, he
         blickt zu Boden, lauter weiße Turnschuhe umringen seine
         looks to floor,   *lauter* white sneakers   surround   his
         schwarzpolierten Maßschuhe.
         black polished   custom-made shoes
         'Suddenly, his nose is tickled by a heavy, sourly smell, he looks to the
         ground, a whole lot of white sneakers surround his polished black custom-
         made shoes.'

(292)   "Ich kann mir nicht helfen," schrieb er als 29jähriger   in   sein
         "I   can   me not   help,"   wrote   he as 29-year-old into his
         Tagebuch, zu dem er 53 Bände   hinterlassen hat, "lauter Extreme
         diary,   to that he 53 volumes left   had, "*lauter* extremes
         kommen auf."
         come   up."
         ' "I can't help myself," he wrote as a 29-year-old into his diary, of which
         he has left behind 53 volumes, "a whole lot of extremes are coming up."

(293)   Lauter Berliner Bands machen ein Konzert, und das   soll
         Lauter Berlin   bands make   a   concert,   and that is supposed to
         auch noch gut   werden?
         also   still   good be
         'A whole bunch of Berlin bands are putting on a concert, and it's supposed
         to be good on top of that?'

(294) Lauter Frauen in Schwarz auf einer Bühne, fangen zu singen an:
Lauter women in black on a stage, begin to sing PRT
'A whole array of women in black on a stage, (they?) begin to sing.'

(295) Braune Knautschledersofas, Kronleuchter, Springbrunnen und
Brown crushed leather couches, chandeliers, fountains and
lauter vergnügte Bürger der DDR sind darauf zu sehen.
lauter cheerful citizens of the GDR are there on to see
'On them you can see brown couches made of crushed leather, chandeliers, fountains and lots of cheerful citizens of the GDR.'

(296) Ein gesuchter Witz jagt den anderen, lauter überzeichnete Figuren
One sought-after joke chases the next, *lauter* caricatured figures
zappeln herum.
wiggle around.
'One sought-after joke is chasing the next, and a whole bunch of grotesquely caricatured figures are fidgeting around.'

(297) Großteils Arbeitslose und Sozialhilfeempfänger, lauter Ungelernte
In large parts unemployed and welfare recipients, *lauter* untrained
haben, unter der Regie der Planungswerkstatt, in zwei Jahren
have, under the direction of the planning workshop, in two years
den ganzen Umbau mit allen Schikanen und feuerverzinkten
the entire modification with all baffles and hot-dip galvanized
Wendeltreppen bewerkstelligt [. . .].
spiral staircases accomplished [. . .].
'In only two years, under the direction of the planning-workshop, all modifications, including baffles and galvanized spiral staircases, were accomplished by a group of untrained workers, in large parts unemployed people and people on welfare.'

(298) Viel Butter, viele Eier, lauter hochwertige Zutaten treiben den
Much butter, many eggs, *lauter* precious ingredients drive the
Preis ebenso wie die Kalorienzahl in die Höhe .
price just-so as the calorie number in the height.
'A lot of butter, many eggs, a whole bunch of high grade ingredients bring up the price as well as the calorie count.'

(299) Nicht ein Team, sondern lauter Einzelspielerinnen, die sich erst
Not a team, but *lauter* solo players, who SELF not until
beim Warmmachen kennengelernt zu haben schienen, standen auf
by the warm up gotten to know to have seemed stood on
dem Feld.
the field.
'There wasn't a team on the field, but a bunch of solo players who didn't seem to have met until the warm up.'

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