INTENSIFICATION AND ATTENUATION ACROSS CATEGORIES

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ABSTRACT

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This dissertation examines the syntax and semantics of intensification and attenuation in English through four cases studies. These case studies provide a way of addressing two questions on the nature of intensification and attenuation. First, what components can intensification and attenuation be decomposed into, and are these components shared across various constructions? Second, can instances of intensification and attenuation be unified under one theoretical framework, or are intensification and attenuation broad terms for disparate phenomena?

Chapter 2 focuses on the modifiers *sorta* and *kinda*. These modifiers are of interest due to their cross-categorial nature, being able to modify noun phrases, verb phrases, and adjective phrases. When composed with a gradable category, such as a gradable adjective (e.g., *sorta tall*), these degree words weaken entailments to the standard. When used with a non-gradable category (e.g., *sorta swim*), they weaken the conditions when the non-gradable category can be used, allowing it to be used imprecisely. I adapt the framework in Morzycki 2011, supposing that natural language expressions have flexible denotations corresponding to pragmatic halos, in the sense of Lasersohn (1999). These halos are linked to a degree of precision on the interpretation function. Typeshifting mechanisms allow this degree of precision to be accessed through grammatical meanings, coercing predicates from being non-gradable into gradable, with the degree of precision providing the scale along which to grade the predicate.

The analysis of *sorta* in chapter 2 is extended to *very* in chapter 3. Canonically, when *very* is used with a gradable adjective, it asserts that the adjective holds to a high degree. However, there exist other cases where *very* is used with a nominal, such as in *the very center of the Earth* and *I spoke with this very person*, as well as with ordinals (*the very first person in line*). I argue that these are imprecision-related uses of *very*, and that, like with *sorta/kinda*, an implicit typeshift is used to

convert these noun phrase into predicates that are graded by their degree of precision. In keeping with its use in the adjectival domain, *very* also asserts that these predicates are to hold to a high degree—in this case, a high degree of precision.

In chapter 4, I examine the use of *some* as a numeral modifier, as in *twenty-some people were at the party*. These cases commit the speaker to ignorance about which particular number satisfies a claim. Moreover, these examples have both a lower bound, coming from the modified numeral and an upper bound due to the syntax of the numeral. I build a syntax for these constructions, and adapt Alonso-Ovalle & Menéndez-Benito's 2010 analysis of *algún* in order to show how the ignorance effect is derived from presuppositions on *some*.

Finally, chapter 5 focuses on *some* in a type of exclamative construction using the determiner *some*. These are examples such as *John is some lawyer!*. I show that these *some*-exclamatives are constrained in that the noun phrase that *some* combines with must be able to be construed so that subkinds can be associated with it. In analyzing these exclamatives, I adopt a question-theory of exclamatives in the style of Zanuttini & Portner (2003), where exclamatives underlyingly make use of an alternative semantics in the style of Hamblin 1973. The existence of exclamatives being built from an indefinite such as *some* provides additional support for exclamatives more generally being an alternative-sensitive construction.

These case studies shed light on various components that underly intensification and attenuation. First, chapters 2 and 3 show how imprecision and slack regulation can be modeled using a degree semantics, as well as a special typeshifting mechanism that transforms non-gradable predicates into gradable predicates by grading them based on precision. Chapter 4 shows how properties of the epistemic determiner *some* are used in generating ignorance effects with numerals and building approximate meanings. Finally, chapter 5 shows how speakers exclaim about kinds and subkinds, and how exclamative constructions depend on alternative-generating constituents (whether they are questions or indefinites). The variety of analytical tools used suggests that intensification and attenuation are not primitive theoretical notions and should not be unified.

To my friends, family, and Ai.

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One of my favorite things to do while reading dissertations is to read the acknowledgements section. While writing my own dissertation these last few months, one brief note in another dissertation's acknowledgement section has stood out in my mind: that although circumstances forced that author's dissertation to be completed, that it should not be taken to imply that the author regards it as a finished work. I have similar thoughts regarding what I write here, in that although it's finally time for me to finish my doctoral studies, I don't consider what I write here to be the final word, but just my turn in a long conversation.

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INTRODUCTION

1.1 Gradability in interpretation

In teaching semantics at the introductory level, the sentences that are used are often fairly uninteresting sentences with relatively crisp truth conditions, such as *John ate an apple* (true just in case John ate an apple) or *Mary is female* (true just in case Mary is in the set of females). Lurking around the corner, and carefully hidden from students (at least for a little while), are the sentences where it is less clear as to how to state their truth conditions, sentences like *John is very tall* and *It is about 3pm*. What does it mean to be *very tall*, when both Shaq and the Empire State Building are very tall? How is *about 3pm* different from *3pm*—is it *about 3pm* if it's 2:57? These kinds of sentences show how sentences can not only have truth conditions that appear quite definitive, but also truth conditions that are vague in particular ways.

But, making reference to how those sentences are vague still does not capture the senses associated with them. When considering *very tall*, for instance, we have not only the sense that *very tall* is hard to pin down, that it is vague, but that it is also much stronger to call someone *very tall* compared to *tall*. And, on the other side of this, when thinking about *about 3pm*, we have the sense that *about 3pm* is a weaker statement about the time of day that *3pm*.

This dissertation is about the intuition that certain lexical items strengthen or weaken the force of an utterance, that some lexical items are intensifiers and others are attenuators. Assigning labels to particular linguistic forms and constructions is not a theory, though, of course. In this dissertation, what I am attempting to do is better understand particular cases of intensification and attenuation across various linguistic categories. By understanding these particular cases of intensification and attenuation, we can learn more about how these manifest in natural language more generally.

In the next sections, I provide some additional examples of intensification and attenuation in

English. The examples provided represent categories of phenomena where they broadly fit into the picture of either intensifying or attenuating meaning.

1.2 Intensification

1.2.1 Gradability and intensifiers

Certain linguistic expressions are gradable, in that they do not simply hold or not hold of an individual, but that they can hold to degrees. The canonical examples of this in many natural languages are gradable adjectives such as *tall*. As examples like those in (1) and (2) show, an adjective such as *tall* not only holds of an individual simpliciter, but that two individuals can be compared by their degree of height.

(1) John is tall.

(2) John is taller than Mary.

Gradable expressions can often be intensified using certain modifiers like *very* and *quite*, too. When these modifiers combine with a gradable predicate like *tall*, the interpretation is that *tall* not only holds of the subject, but also that the degree of tallness is quite high on the scale of tallness.

(3) John is quite/very tall.

These kinds of examples have been important in the study of gradability and vagueness due to the sense that the gradability is arising from the adjective itself. When we claim that someone is very tall, *very* is intensifying along a scale that is built into the adjective. In understanding intensification, this fact is important in that suggests that some categories in natural language can be inherently intensified. But, the question this raises is what categories allow for this inherent intensification, and what are the grammatical means for accomplishing this?

1.2.2 Exclamatives

Exclamatives provide another environment where intensification is exhibited. Examples of exclamatives include *wh*-exclamatives in (4), where the defining feature is the use of a *wh*-word, as well as nominal exclamatives like those in (5).

(4) a. What delicious pies John baked!

b. What a big crowd it was!

(5) a. The things he eats!

b. The strange things he says!

Exclamatives provide for another clear case of intensification, in that the natural interpretation for them is one where the exclamative is exclaiming about a high degree of some property. For instance, (4a) naturally exclaims that the pies that John bakes are quite high on a scale of deliciousness. In order to better understand intensification as a phenomenon, exclamatives are a useful area of inquiry.

1.2.3 Increased precision

Lasersohn (1999) notes that linguistic expressions often allow for an amount of imprecision or pragmatic slack to be afforded to them. For instance, a sentence such as that in (8a) allows for a few exceptions in a normal discourse (e.g., we're free to overlook a couple nightowls in the town), and similarly for (8b), which allows John to not have arrived at precisely 3pm.

(6) a. The townspeople are asleep.

b. John arrived at 3pm.

However, certain words and phrases reduce our tolerance for loose talk. An example of this is as in (9a), where the use of *all* allows for fewer or even no exceptions to the claim that the townspeople are asleep. And, in (9b), the use of *precisely* makes us be much more exactly about the precise time that John arrived.

(7) a. All the townspeople are asleep.

b. John arrived at precisely 3pm.

Cases like this provide another kind of case where natural language allows speakers to intensify the meaning of a linguistic expression. However, the way that this intensification operates is intuitively quite different than how the intensification we can find in *very tall* works; where *very tall* grades over a scale that is inherent to the expression (e.g., the tallness scale contributed by *tall*), increases of precision do not operate on a scale inherent to the expression being modified. *Precisely 3pm* is not somehow more 3pm than *about 3pm* or even *3pm*, whatever that would mean, but it is about the choice of words used itself. The scale of precision is a scale that is about the aptness of particular words in context.

1.3 Attenuation

1.3.1 Approximation and slack regulation

Section 1.2.3 notes how imprecision and slack regulation can be viewed as a form of intensification in some situations, where the slack regulating lexical item in a sense intensifies the meaning of the expression by requiring it to be interpreted more strictly. However, there are also cases where slack regulation can go the other direction as well, in allowing for interpretations that are looser rather than stricter.

For instance, well-known cases where looser (rather than stricter) meanings are constructed can be found in Lakoff 1973. Lakoff gathers a dizzying array of examples of hedging (and intensification) in English, with a few examples in (8).

(8) a. A chicken is sort of a bird.

b. In a manner of speaking, a bat is a bird.

c. Loosely speaking, a whale is a fish.

In these examples, the speaker is speaking 'loosely'—that is, the speaker is using modifiers in such a way so the predication expressed in the sentence will be true, or at least true enough; the kind of system that Lakoff envisions is a system using fuzzy logic, a type of many-valued logic (Zadeh, 1965). In classical Boolean logic, there are two truth values, corresponding to truth or falsity. In fuzzy logic, truth comes in a continuum, as a real number between 0 and 1. As shown by Fine (1975); Kamp (1975), though, fuzzy logic is inadequate to account for some inference patterns in natural language, leading largely to its abandonment in formal semantics.

Cases of the kind discussed by Lakoff are of interest for this study in that they are a relatively clear case of attenuated meaning. Quite intuitively, the meanings in (8) are weakened in some way. This first raises the issue of how attenuation can occur in the first place—what kind of logical representation might we need to support a weakening of meaning in this way? But, the bigger question that these cases raise is what their connection to cases of increased precision in section 1.2.3 is: are these two sides of the same coin, or are they really quite different in terms of their logical representation?

1.3.2 Epistemic indefinites

Epistemic indefinites are indefinites that convey ignorance on the part of the speaker as to the particular referent of some nominal expression. They are quite robustly attested cross-linguistically with examples in English (*some*), German (*irgendein*), Spanish (*algún*), Romanian (*vreun*), Hungarian (*vagy*), and Japanese (the WH-*ka* series of pronouns), to name a few.

To illustrate with an example from English, consider *some*, which implicates that the speaker doesn't know the precise identity of the person being referred to. The examples in (9) and (10) below demonstrate this. While person B cannot ask the question about who was shot in the exchange in (9), due to person A having used *some*, this is allowed in (10), due to the indefinite *a* being compatible with knowledge on the part of the speaker.

(9) A: Some cabinet minister has been shot!

B: #Who?

(10) A: A cabinet minister has been shot!

B: Who?

Epistemic indefinites such as *some* provide another case where language is able to attenuate meanings. Here, the attenuation comes in the form of being to identify the referent of the indefinite noun phrase, which is a weaker claim than identifying the referent.

1.4 This dissertation

1.4.1 The connection between intensification and attenuation

What is not clear from the overview in the previous section of different domains of intensification and attenuation is whether the two should be treated in similar sorts of ways. Drilling into the issue further, it's also not clear to what extent the types of phenomenon we might want to call intensification can be unified using one sort of semantic analysis. This holds likewise for attenuation.

In my dissertation, I look at intensification and attenuation in three domains: imprecision, approximation, and exclamatives. My answer to this question is that there is no unification, that the expression of intensification and attenuation vary across categories. With respect to imprecision, I show how intensification and attenuation can be linked together through a degree semantics. For approximation and exclamatives, however, no degree semantics will be used. The phenomena in these domains, instead, structure sets of alternatives in particular ways. An overview of the chapters is given in the next few sections.

1.4.2 Imprecision

In chapters 2 and 3 of this dissertation, I look at imprecision in two contexts. The first context is with the modifiers *sorta* and *kinda*. These modifiers can attach to gradable adjectives, as in (11),

where I argue they do the opposite of the *pos* morpheme and quantify over degrees that are lower than the contextually supplied standard. Reinforcing the idea that *sorta* and *kinda* are targeting degrees that are part of the argument structure of the predicate is that they can modify gradable verbs as well, as in (11).

(11) a. John is sorta tall.

b. The coffee is kinda hot.

(12) He kinda loves her.

When these modifiers are used with non-gradable properties, they serve to quantify over degrees that are lower than the contextually supplied standard. Someone who is *sorta tall*, for instance, does not quite meet the standard for tallness, but may come close to doing so. As these predicates inherently provide for scales (tallness, heat, and love, respectively), the use of *sorta* and *kinda* in these examples serves to show how attenuation can occur with predicates that lexically encode scales.

However, *sorta* and *kinda* do not only operate over lexically specified scales. When used with non-gradable predicates, such as in the examples in (13), the scale that is used is best characterized as one of aptness in the particular context. (13a), for example, specifies that it might not be completely apt to describe what happened as kicking the ground, and that some conceptually close meaning should be used instead.

(13) a. I sorta kicked the ground.

'I did something like kicking the ground.'

b. He sorta swam over to the boat.

'He did something that was like swimming over to the boat.'

In chapter 2, the way that I will cash this out will be in terms of precision. I adopt a model where pragmatic halos (in the sense of Lasersohn (1999)) are available in the compositional semantics, and the lexical items *sorta* and *kinda* are used to expand the halo associated with the expression they

modify. The central question in the chapter is how these can act both as degree words (and attenuate along inherent scales) and also as slack regulators (attenuating through expanding a pragmatic halo). The model I build uses degrees in both cases, but lexically specified degree arguments for the former case and degrees corresponding to precision in the latter.

Chapter 3 expands on this to include cases of intensification using *very*. Canonically, *very* modifies gradable adjectives, but in some cases it seems to modify a nominal element. Examples of this are in (14), where *very* serves to increase the precision to which the modified element is interpreted, narrowing a pragmatic halo.

(14) a. the very center of the Earth
b. the very spot where Lincoln stood
c. the very beginning of the line
d. the very front at the concert

Expanding the system in this way shows that, at least in the case of intensification and attenuation when they are working over a scale of precision, they can profitably be thought of in similar terms.

1.4.3 Approximation and *some*

Chapter 4 of this dissertation looks at the use of *some* as an approximator for numerals. Some examples of this are in (15), where the numerals modified by *some* have the glossed interpretation.

(15) a. There were twenty-some people at the party.
'There were between 21 and 29 people at the party.'
b. His forty-some years of experience were devoted to human resources.
'He had between forty-one and forty-nine years of experience in human resources.'

These examples prove interesting for the study of attenuation in that they show a connection between attenuation in two different domains: the domain of epistemic indefinites, and the domain of approximatives. What I show in this chapter is how an approximative interpretation can be

formed from the epistemic indefinite *some*. In my analysis, *some* combines with a covert numeral, in order to essentially create an indefinite numeral. Crucial here are the epistemic indefinite properties of *some*, which force the speaker to not be able to commit to a particular number. This chapter shows how attenuation with respect to approximatives can be generated.

1.4.4 Exclamatives

Finally, this dissertation also takes a look at lesser-studied exclamatives using the determiner *some* in chapter 5, as in the examples in (16).

(16) a. John is some lawyer!

b. Mary is some friend!

What makes these exclamatives particularly curious is their use of *some*, which is known to be an epistemic indefinite. Other indefinites do not participate in creating exclamatives so easily, as might be shown by the lack of *a*(*n*)-exclamatives in (17). These still cannot be rescued by copying the intonational contour that's present on the *some*-exclamatives in (16).

(17) a. #This is a delicious dessert!

b. #Mary is a lawyer!

Clearly, what is crucial in building the exclamative meaning in these examples is specific properties of the determiner *some* that make it contrast with *a*(*n*). In short, it seems to be a property of the epistemic indefinite nature of *some* that it can be used to build exclamative meanings. Paradoxically, it's the nature of *some* as an attenuator that allows it to also be used as an exclamative. In chapter 5, I provide an analysis of *some*-exclamatives that explains how this is so. *Some* is analyzed as obligatorily generating a non-singleton set of propositions (in contrast with *a*(*n*)), and it will be the non-singleton nature of the this set that allows *some*-exclamatives to be possible. The chapter additionally argues for a view where kinds (and not degrees, contra other theories of exclamative such as Rett 2011) are implicated in the meaning of *some*-exclamatives. This provides a case study

in how intensification can occur without degrees, and how the grammatical machinery used in epistemic indefinites for attenuation can also play a role in intensification.

1.5 Decomposition and unification

As a major theme, this dissertation concerns itself with how intensification and attenuation can be decomposed. In other words, what are more basic semantic components that go into constructing intensification and attenuation? Are these components the same across all intensifiers, or are there a wide variety of pieces that can go into building them?

This work splits intensification and attenuation into various components. One main focus here will be on how degrees can be used to intensify and attenuate meanings. Degrees provide for an intuitive way of representing measurement along some scale, where a degree is an abstract variable that encodes an individual's particular measurement along some scale of measurement (such as a height scale). Degrees are quite familiar from the semantics of gradable adjectives, where gradable adjectives have been argued to either have degree arguments (as verbs have arguments for individuals) (Cresswell, 1976; von Stechow, 1984; Bierwisch, 1989) or to denote measure functions from individuals to degrees (Kennedy, 1999), as well as from work on comparatives and superlatives. Degrees present one component that is used independently in other domains of the grammar.

A second important piece of the decomposition that is made more extensive use of in chapter 5 (and implicit in the discussion in chapter 4) is alternatives. The notion of alternatives is found in Hamblin's 1973 analysis of questions. Although a statement denotes a proposition, it's clear that questions do not denote propositions, as questions do not have truth values associated with them. Hamblin instead analyzes questions as denoting sets of propositions, propositions that correspond to possible answers to the question. More recently, alternatives have been implicated in other domains of the grammar as well, such as in the semantics of indefinites (Kratzer & Shimoyama, 2002). Proposals such as Gutiérrez-Rexach 1996 and Zanuttini & Portner 2003 also argue for an extensive role for alternatives in the semantics of exclamative constructions.

Finally, chapter 5 uses tools from the study of kinds in order to analyze *some*-exclamatives such as *John is some lawyer!*. Kinds, at least to a first approximation, correspond to the intuitive notion of a genus, the concept of certain individuals forming a class of individuals. For instance, *potato* in the sentences in (18) refers to the kind *potato*, and not to individual potatoes.

(18) a. The potato was first cultivated in South America.

b. Potatoes were introduced into Ireland by the end of the 17th century.

c. The Irish economy became dependent upon the potato.

(Krifka et al., 1995)

More generally, though, we can take kinds to correspond not just to natural kinds such as *potato*, but to groups of individuals that share certain regular properties. Nouns such as *lawyer* and *teacher*, for instance, would make reference to these sorts of kinds. Kinds can also have subkinds associated with them as well. There are subkinds of potatoes, such as Russets and Yukon gold potatoes, as well as subkinds of lawyers such as divorce lawyers and bankruptcy lawyers. Subkinds also form kinds in that they also have regular properties associated with them. Kinds are independently motivated as part of the linguistic system by work such as Carlson 1977 and Chierchia 1998.[1]

These components are used to build the semantics and pragmatics of intensification and attenuation for the constructions examined in this dissertation, although not all constructions will make use of all of these components. This raises questions related to the second major theme of this dissertation, namely how much (or how little) we should attempt to unify instances of intensification and attenuation. Broadly speaking, intensification and attenuation provide intuitive pre-theoretical categories for unification—there is a category of constructions dealing with making utterances stronger, and a category of constructions dealing with making utterances weaker. Given that we can plainly see that these exist at the level of description, we might ask if all instances of intensification and attenuation can be unified. The answer to this is that unification does not seem to be possible at the highest levels. Intensification and attenuation are not unified notions, as will be seen later

[1] And see Krifka et al. 1995 for an overview.

on (and as the list of components earlier in this chapter might suggest), but are simply broad terms for certain types of phenomenon. Although I will claim that unification is impossible, broadly speaking, decomposing intensification and attenuation as I do here provides support for more limited unification of certain domains.

1.6 Co-opting mechanisms

Lastly, another major theme of this work is the cross-categorial nature of particular words and morphemes, and how some lexical items seem to be co-opted in order to express meanings that they might not have originally been intended to express. This is a concept that is separate from that of grammaticalization, the process whereby the grammatical function of words and morphemes changes over time, or where lexical items can have their syntax and semantics shifted in order to cover certain grammatical properties. Rather, the process that I am describing here is not one where the lexical items grammaticalize and are used in a new environment, but one where the lexical items, by virtue of the sort of syntax and semantics they already have, can be used in a variety of grammatical roles.

The best example of this in this dissertation is *some*. As an epistemic indefinite, *some* is used to express ignorance as to the particular identity of some individual. But, as I show in later chapters, *some* has uses that fall outside of its normal use of an epistemic indefinite. In chapter 4, I show how *some* can be used to generate approximate meanings when it is used with other number words. Although the use of approximation with *some* seems to be clearly related to its use as an epistemic indefinite, in that they are both attenuated meanings and express some weakened commitment on the part of the speaker, it is not otherwise completely obvious how to derive the approximative meaning from the other. The chapter articulates a way of thinking about that connection.

Moreover, the use of *some* in *some*-exclamatives in chapter 5 also shows another way in which *some* can be co-opted in order to express a type of meaning it might not primarily be used to express. The key conceptual issue with *some* being used in *some*-exclamatives is that, although

some falls on the side of being an attenuator when used canonically, its use in *some*-exclamatives shows how it can take part in expressing intensified meanings as well. In that chapter, I show how the attentuation inherent to *some* is important in building up the meaning of *some*-exclamatives. Again, this chapter recalls the theme that, although linguistic expressions may have canonical uses to them, the grammar can borrow expressions with the right logical properties in order to use them to express kinds of meanings that they would not otherwise express.

1.7 Structure of the dissertation

The individual chapters of this work are as follows. Chapter 2 examines the syntax and semantics of *sorta* and *kinda*, providing a framework to show how they can increase imprecision when used with non-gradable predicates. Chapter 3 extends this same framework to cases where *very* can also be used to increase precision. Chapter 4 looks at the use of what I call NumSome, cases where *some* can be used to modify numerals and implicate ignorance on the part of the speaker. Finally, chapter 5 examines an exclamative construction using *some*, showing how it relates to other, more canonical exclamatives.

For the most part, these chapters can be read sequentially or individually. Read sequentially, these chapters provide a sense of what the components underlying intensification and attenuation are, and how these notions might be unified (or not). Chapter 6 expands on that theme. However, chapters can be read individually as well, for readers that are interested in particular topic areas. For readers interested in imprecision and vagueness, chapters 2 and 3 should be read together, along with section 6.2, where I have additional thoughts on whether PREC is a typeshift. Readers interested in numerals, epistemic indefinites, or approximation can proceed to chapter 4 without any loss of clarity. And, any readers interested in exclamative constructions can read chapter 5 without having read previous chapters.

CHAPTER 2

SLACK REGULATION USING *SORTA*

2.1 Introduction

Modifiers that attenuate meanings, such as *sorta*, *kinda*, *more or less*, and *somewhat* (to name a few) are a pervasive aspect of language, providing a link between semantics and pragmatics, with a foot anchored securely in each domain. Although the target of early forays into formal semantics (Lakoff, 1973), hedges have been studied much less compared to other phenomena that cut across semantics and pragmatics, such as polarity items (**?**Fauconnier, 1975, and others). This chapter presents a case study on *sorta* (and its sibling *kinda*) with the intent of making clear some of its lexical semantic properties. Chief among the properties studied will be its cross-categorial nature and how it can modify adjectives as well as verbs, as in (1) and (2), respectively, and even in some cases nouns, as in (3).

(1) a. It's sorta hard to explain.

b. a lot of young people think their parents are starting to seem, you know, sorta old and over the hill...[1]

c. Gas is sorta expensive.[2]

(2) a. But I can't see how that Diaz just sorta evaporated, like some kid's bad dream.[3]

b. ...running on concrete and accidentally sorta kicked the ground.[4]

(3) a. a sorta fairytale[5]

[1] Corpus of Contemporary American English (COCA) (Davies, 2008)
[2] `http://www.tripful.com/q/v/257295/i_want_to_move_to_south_nm_or_az_advice_please`
[3] COCA
[4] `http://www.kongregate.com/forums/2/topics/97092?page=2`
[5] Tori Amos, "A Sorta Fairytale." Epic/Sony BMG. (song lyrics)

b. I may be your sorta mom now and I'm practically a child myself.[6]

Also of interest in this study will be the source of the gradability for various predicates, and why *sorta* has the effect of making verbs and nouns conceptually gradable.

This has broader reaching consequences than simply the lexical semantics of *sorta*. I argue that there are at least two sources of gradability that *sorta* diagnoses: the inherent gradability of scalar adjectives such as *tall*, but also coerced gradability derived from sets of alternatives modeling Lasersohnian pragmatic halos. This has the further consequence of making pragmatic halos part of the compositional semantics, a move that follows (Morzycki, 2011). The central claim of the chapter will be that *sorta* operates as a degree word, but in constructions without a lexicalized degree argument, a typeshift occurs that bestows a degree argument upon a non-gradable predicate. The role of this typeshift is to build a new scale where no scale existed previously.

First, a note on conventions: throughout the chapter, I use *sorta* to refer to the adverbial element in examples (1)–(3) above. I write this element as *sorta* rather than *sort of* in order to emphasize its difference from the noun *sort* (i.e., *a sort of dog*). *Sorta* is often reduced in speech, which the writing is also meant to reflect, but there may be cases where I have written *sorta* but it is not reducible for typical American English speakers. Finally, I take *sorta* to be equivalent to *kinda* (*kind of*, more standardly written); insofar as I can tell, there is no semantic difference between the two. Some speakers do prefer *kinda* over *sorta*, for seemingly apparent stylistic reasons, so for examples where *sorta* is used, *kinda* can be substituted for those speakers.

2.2 *Sorta* with gradable and non-gradable predicates

2.2.1 *Sorta* and adjectives

Sorta readily appears with gradable adjectives, and is able to combine with adjectives in the positive as in (4), as well as the comparative in (5), and constructions involving *too* and *enough* as in

[6]Modern Family, "The Future Dunphys." ABC. (from a TV show)

examples (6a) and (6b). In this way, *sorta* looks like a degree word like *very* or *slightly*, which can also appear in many of these same environments.

(4) a. Bill is sorta tall.

b. Gas is sorta expensive.

(5) a. She's sorta more intelligent than he is.

b. After losing a lot of weight I do feel sorta taller.[7]

(6) a. I would cry but I'm sorta too angry. [8]

b. They are sorta old enough to appreciate it. [9]

If *sorta* is a degree word, we might also expect it to be an answer to *how*-questions, as *very* and *slightly* can. Example (8) shows that this is in fact possible.

(7) a. How tall is Bill? Very tall.

b. How wet is the sponge? Slightly wet.

(8) How tall is your friend Bill? Sorta tall.

The natural interpretation of *sorta* here also suggests that it is degree-related. For instance, example (4a) claims that the individual Bill falls along the tallness scale, a meaning which is comparable to the sense of another degree word like *very*. The interpretation also makes reference to a contextually defined standard; *sort of tall* intuitively asserts that an individual holds a degree of height close to the standard for being tall. Again, this is comparable to a degree word like *very*, which asserts that an individual holds a height far above the standard.

However, *sorta* differs from other degree words in being able to combine with non-gradable predicates as well, as in (9).

[7] `http://facepunch.com/showthread.php?t=1180165`

[8] `http://firewifeelly.com/2011/02/19/i-would-cry-but-im-sorta-too-angry/`

[9] `http://westcoastmuthas.com/2013/07/29/are-we-there-yet/`

(9) a. I've been sorta pregnant four times. Being sorta pregnant sorta sucks. It's like you're late, you test early, you see two lines, you go for a blood test, you're pregnant, and then it's JUST KIDDING![10]

b. It's sad [Chinese river dolphins] are (sorta) extinct. They're such cool critters.[11]

What's important to note is that *sorta* loses its degree sense. (9a) doesn't assert a degree along a scale of pregnancy (because there is no scale), but involves a shift in meaning, one from actual pregnancy to passing the test for pregnancy. This shift in meaning can be aptly paraphrased with an approximative such as *close to* or *like*, and the approximative asserting closeness to the 'normal' meaning of the word: being *sorta pregnant* is like being pregnant in passing certain tests for pregnancy, while being *sorta extinct* is being very close to being extinct.

Also supporting the idea that *sorta* is degree-related is that it participates in forming scales with other degree words. Intuitively, *sorta* is the weaker member of the scale $\langle sorta, very \rangle$.

(10) He isn't just sorta tall, he's very tall.

Summarizing, *sorta* has a clear degree use with gradable adjectives, but can be used with non-gradable adjectives as well. When used with non-gradable adjectives, *sorta*-modified predicates undergo a meaning shift towards something approximating the modified predicate.

2.2.2 *Sorta* and other non-gradable predicates

Sorta can combine with other non-gradable predicates as well. Chief among these are verbs, but for some speakers, nouns are possible as well. Like cases involving non-gradable adjectives, *sorta* with a verb also involves a meaning shift and can be paraphrased with an approximative. The role of *sorta* here is to assert some conceptual closeness to what is being modified.

[10] `http://stowedstuff.com/2012/12/sorta-pregnant.html`
[11] `http://clockworkstamps.deviantart.com/art/Baiji-151769205`

(11) a. I sorta kicked the ground.

'I did something like kicking the ground.'

b. He sorta swam over to the boat.

'He did something that was like swimming over to the boat.'

The use of *sorta* with nouns differs from the nominal *sort*, as demonstrated with the contrasts in (12) and (13).[12] *A sort of fairytale* is a type of fairytale, but *a sorta fairytale* can be taken to mean something that is only like a fairytale in some respect. Similarly, although a Porsche is a sort of car, it most definitely is not a *sorta* car.

(12) a. a sort of fairytale

'a type of fairytale'

b. a sorta fairytale

'almost but not a fairytale'

(13) a. A Porsche is a sort of car.

b. *A Porsche is a sorta car.

Important to point out is that *sorta* weakens the entailments of what it modifies; there is no entailment from *sorta V* to *V*, where *V* is a verb. Trying to force a contradiction shows that *sorta* is able to weaken the entailments of the verb phrase (Bolinger, 1972). This shows that there are semantic, truth-conditional consequences involved with this modifier.

(14) a. He swam over to the boat. *That is to say, he didn't really swim.

b. He sorta swam over to the boat. That is to say, he didn't really swim.

(15) a. He kicked the ball. *That is to say, he didn't really kick it.

b. He sorta kicked the ball. That is to say, he didn't really kick it.

Finally, *sorta* with non-gradable predicates has the intuitive feeling of gradability. Constructions

[12] Some speakers have trouble with *sorta* as a noun modifier.

with *sorta* involve locating two predicates (*sorta V* and *V*) along a scale of resemblance, with one predicate holding a lesser degree of resemblance to the other. This is a derived notion of gradability. The gradability involved here with non-gradable predicates isn't inherent to the lexical item itself (as it is with a gradable predicate such as *tall*), but rather is external to the predicate.

2.2.3 *Sorta* can affect nouns

Sorta is able to modify verb phrases headed by most types of verbs. For many verbs, the behavior of *sorta* mirrors the behavior in (15b) above, where *sorta* hedges the verb. For some verbs, however, a second reading arises where *sorta* can hedge not just the verb but also its direct object. Some verbs that can do this easily include some intensional transitive verbs (such as *look for*), as well as creation verbs (*build*), depiction verbs (*draw*, *paint*), and performance verbs (*sing*). To illustrate, in (16) below, the sentence is ambiguous between two readings: one reading where the verb is hedged, but also one reading where the direct object of the verb is hedged. (17) demonstrates the same phenomenon with a depiction verb, and (18) with *look for*.

(16) The carpenter sorta built a barn.

a. The carpenter did something that was like building a barn (e.g., putting together a prefabricated structure).

b. The carpenter built something like a barn (e.g., a shed).

(17) The boy sorta drew a house.

a. The boy did something like drawing a house (e.g., connected the dots in a picture).

b. The boy drew something that was like a house.

(18) I'm sorta looking for a horse.

a. I'm only half-heartedly looking for a horse.

b. I'm looking for something like a horse.

With more difficulty for some speakers, other verbs can allow their verbs to be hedged as well. For

example, (19a) has a reading where something like a cookie was eaten (say, a biscuit) and (19b) has a reading where something similar to a car was purchased (say, a station wagon, in a situation where what is important is having a lot of space for hauling things).

(19) a. I sorta ate a cookie.

b. He sorta bought a truck.

Indirect objects can be targeted by *sorta* as well: in a situation where I am talking with writer friends about where things we have written are being submitted, (20) can be felicitously uttered. And in (21), if the speaker is chatting with others about meeting their spouses at parties, the indefinite inside the prepositional phrase adjunct can also be targeted by *sorta*. Generally speaking, the compositional system seems to freely allow *sorta* access to indefinite noun phrases inside the VP.

(20) I sorta submitted an article to a magazine — except it wasn't really a magazine, but a journal.

(21) I sorta met my spouse at a party, too — it was really a conference dinner rather than a party, but it had an informal atmosphere.
(cf. *I met my spouse at a party, too — it was really a conference dinner)

A matter worth reflecting on for this puzzle is how *sorta* can affect a direct object at all. Given standard syntactic assumptions, *sorta* and the direct object never form a constituent, and in fact, *sorta* directly modifying a DP is quite unacceptable (22).

(22) a. *I saw sorta a bird.

b. *She ate sorta a cracker.

c. Sorta a truck is what I am looking to buy.

Under common assumptions about compositionality, it should be a bit of a mystery about how *sorta* can affect the interpretation of an NP when it doesn't form a syntactic constituent with it.

2.2.4 *Sorta* is not *almost*

Our first course of action might be to treat *sorta* as just a variation on *almost*, as they both have an approximative interpretation and both are cross-categorial modifiers. However, these two modifiers have different restrictions on what they can felicitously combine with. First, *sorta* is acceptable with relative adjectives, but *almost* is marginal or unacceptable with relative adjectives. Unlike *almost*, *sorta* does not seem to be endpoint oriented when used as an adjectival modifier.

(23) a. Floyd is { sorta / ??almost } tall.

b. Gas is { sorta / *almost } expensive on the island.

Furthermore, *sorta* is generally able to modify activity verbs without further contextually support. *Almost*, by comparison, is distinctly odd with activity verbs unless there is some additional contextual information (such as a scenario for (24b) where people are being judged on whether they successfully ran or not). Although the examples in (24b) and (25b) below are good on the reading where the possibility of the event is presupposed (i.e., the possibility of Bill running is taken for granted), they are much less acceptable on a second reading where what is asserted is that the event comes close to but does not quite meet the criteria for using the event description without *almost* — e.g, for (24b), that Bill did something like but not quite running. This compares with the *sorta* examples in (24a) and (25a), which are acceptable.

(24) a. Bill sorta ran.

b. ??Bill almost ran.

(25) a. Floyd sorta jogged.

b. ??Floyd almost jogged.

Another difference between *sorta* and *almost* is in their licitness with measure phrases. *Almost* is readily licensed in the presence of a measure phrase, but *sorta* cannot combine with measure

phrases.

(26) a. Floyd is { almost / *sorta } six feet tall.

b. It's { almost / *sorta } 30C today.

Finally, *almost* can be used with DPs headed by certain quantificational determiners (Horn, 1972), but *sorta* cannot combine with those DPs, or any DPs at all.

(27) a. { almost / *sorta } every dog was present.

b. { almost / *sorta } no dog was hairy.

To summarize, although *sorta* and *almost* share the fact that they both incorporate an approximative meaning, *sorta* is not simply reducible to *almost*; there are obvious syntactic and semantic differences between the two, as demonstrated by their distributions.

2.2.5 Summary

The observations in the previous sections bring up several points that an analysis of *sorta* must account for. The first point regards the cross-categorial nature of *sorta*. Why is it that *sorta* can appear with words and phrases of several lexical categories (adjectives, nouns, verbs)? What would *sorta* have to do in order to be used with categories that are often thought to have different semantics? And with regards to the semantics of gradability, how does *sorta* induce gradability where it did not arise before? I address these questions in section 2.4, but first take time to introduce useful background assumptions in the upcoming section.

2.3 Pragmatic halos and alternative semantics

2.3.1 Halos

Lasersohn (1999) observes that many natural language expressions can be used licitly even in situations where they would be false, strictly speaking. For instance, consider the utterance in (28) below. Under normal circumstances, (28) can be uttered even if there are a handful of night owls still awake. Lasersohn notes that the few people still awake at midnight in this situation don't seem to matter for the licitness of (28); even though it's false that the townspeople are asleep (some of them are awake, after all), the sentence is still pragmatically acceptable. The conclusion to draw from this is that hearers afford other speakers what Lasersohn calls "pragmatic slack" — speakers are allowed a degree of sloppiness in their speech. The hearer affords the speaker of (28) pragmatic slack in how *the townspeople* is to be interpreted; although a few people awake at midnight do count semantically for the truth conditions of (28), they are pragmatically ignorable exceptions.

(28) The townspeople are asleep. (uttered at midnight)

This isn't confined solely to definite plural NPs. Similar behavior can be demonstrated with other things: with time (where (29) can be uttered if it's not exactly 3 o'clock); with a quantifier such as *everyone*, as in example (30), even if a few students are missing; and with predicates such as *spherical* in (31), even though very few things are perfectly spherical. Pragmatic slack is afforded quite regularly.

(29) It's 3 o'clock. (uttered at 2:58pm)

(30) Ok, everyone is here. (uttered by a professor at the start of class when a few students are absent)

(31) The earth is spherical.

Lasersohn proposes that certain linguistic expressions have surrounding them a "pragmatic halo"

of pragmatically ignorable differences. 3 o'clock (for instance) might have a halo that includes times five minutes before and five minutes after 3 o'clock. As long as the truth of the matter falls within the halo, the utterance will be licit, and (29) is licit because the true time, 2:58pm, is within the pragmatic halo of 3pm. Similarly, although the Earth might not be a perfect sphere, *spherical* is interpreted imprecisely enough so that near spheres fall within its pragmatic halo and are pragmatically ignorable.

Pragmatic halos can be modified by what Lasersohn calls "slack regulators." These modifiers work to contract the size of the halo — in other words, to allow less pragmatic slack and require more precision in how a statement is interpreted. If the slack regulator *all* is used as in (32) in a situation where townspeople are known to be awake, the sentence is false and recognized by hearers as infelicitous. Similarly for the slack regulators *exactly* and *perfectly* in (33) and (34), respectively, which shrink the pragmatic halo and require more precision in how the terms are interpreted.

(32) All the townspeople are asleep. (no exceptions allowed)

(33) It's exactly 3 o'clock. (cannot be uttered at 2:58pm)

(34) The earth is perfectly spherical. (recognized by hearers as false)

The manipulation of pragmatic halos will form an important part of the analysis in later sections, with *sorta* analyzed as widening a halo. But first, I introduce in the next section an implementation of Lasersohn's proposal using Hamblin semantics.

2.3.2 An alternatives-based implementation

Morzycki (2011) provides an analysis of metalinguistic comparatives (see also McCawley (1998)). Informally, metalinguistic comparatives compare how apt or appropriate a particular expression is. To characterize (35a), for example, what's being compared is the aptness or appropriateness of calling George dumb or crazy, and similarly in (35b), what's being compared is the appropriateness of calling Clarence a syntactician or semanticist.

(35) a. George is more dumb than crazy.

b. Clarence is a syntactician more than a semanticist.

Morzycki cashes out the descriptive generalization here in terms of imprecision. What's being compared is how precise it is to call George dumb or crazy. A degree parameter on the interpretation function $[\![.]\!]$ captures this, where higher degrees correspond to increased precision. I will call this the imprecision parameter or degree of imprecision. A metalinguistic comparative, then, compares the degree of imprecision between two expressions. This is demonstrated informally in (36), where $\mathbf{max}(D) = \iota d[\forall d'[D(d') \rightarrow d' \leq d]]$.

(36) $[\![\textit{George is more dumb than crazy}]\!]^{d'}$

$= (\lambda d.\, [\![\textit{George is dumb}]\!]^{d}) > \mathbf{max}(\lambda d.\, [\![\textit{George is crazy}]\!]^{d})$

'The degree to which we can call George dumb is greater than the degree to which we can call George crazy.'

Morzycki suggests that imprecision should be thought of in terms of Lasersohn's pragmatic halos. Halos are recast in terms of alternatives (Hamblin, 1973; Kratzer & Shimoyama, 2002). Denotations themselves are identified with their pragmatic halo, with the imprecision parameter directly determining the size of the halo. The alternatives in the pragmatic halo are built from a primitive relation $\approx$ "resembles," which compares the degree to which two predicates of the same type resemble each other. This is defined in (37).

(37) $\alpha \approx_{d,C} \beta$ iff, given the ordering imposed by the context C, α resembles β to (at least) the degree d and α and β are of the same type (Morzycki, 2011).

A denotation for *dumb* might look as in (10): a set of functions of type $\langle e,t \rangle$ such that each function f resembles **dumb** to at least degree d. (11) illustrates how the value of the imprecision parameter affects the size of the pragmatic halo. High degrees decrease the size of the halo, while the maximum degree forces the halo to be a singleton.

(38) $[\![dumb]\!]^{d,C} = \{f_{\langle e,t\rangle} : f \approx_{d,C} \textbf{dumb}\}$

(39) a. $[\![dumb]\!]^{1,C} = \{\textbf{dumb}\}$

b. $[\![dumb]\!]^{.9,C} = \{\textbf{dumb}, \textbf{ignorant}, \textbf{dopey}, \textbf{foolish}, \ldots\}$

c. $[\![dumb]\!]^{0,C} = D_{\langle e,t\rangle}$

The lesson is that we can think of Lasersohnian pragmatic halos as existing not in a post-compositional pragmatics, but as part of the compositional semantics. By providing a hook into pragmatic halos through the imprecision parameter and by modeling halos as alternatives, we are able to provide a compositional account of how pragmatic halos interact with the rest of the grammar.

In a Hamblinized system such as this, it's useful to have a mode of composition separate from Function Application (FA) (Heim & Kratzer, 1998) that can put sets of functions together with their arguments — namely, it's useful to have a mode of composition where we can act like we're working with functions, but in reality be building up larger sets of alternatives. The intuition behind this new mode of composition is to apply all the objects from one set of alternatives to all the objects from another set of alternatives pointwise, creating another set of alternatives. This is formalized as Hamblin Function Application in (40) below.

(40) HAMBLIN FUNCTION APPLICATION (HFA)

If α is a branching node with daughters β and γ, and $[\![\beta]\!]^{d,C} \subseteq D_\sigma$ and $[\![\gamma]\!]^{d,C} \subseteq D_{\langle\sigma,\tau\rangle}$, then $[\![\alpha]\!]^{d,C} = \{c(b) : b \in [\![\beta]\!]^{d,C} \wedge c \in [\![\gamma]\!]^{d,C}\}$ (Morzycki (2011), based on Kratzer & Shimoyama (2002))

To illustrate, suppose a function A, type $\langle e, st\rangle$ and a set B, type e, as represented with the sets of alternatives in (41) below.

(41) $$A = \left\{ \begin{array}{l} \lambda x \lambda w.f(x)(w), \\ \lambda x \lambda w.g(x)(w), \\ \lambda x \lambda w.h(x)(w) \end{array} \right\}$$

$$B = \{a, b, c\}$$

Since these are sets, $A(B)$ proceeds via HFA and not FA. Each object in the set A is applied to each object in B, resulting in the set C such that $C = A(B)$. This is illustrated below in (42).

(42) $$C = A(B) = \left\{ \begin{array}{lll} [\lambda x \lambda w.f(x)(w)](a), & [\lambda x \lambda w.f(x)(w)](b), & [\lambda x \lambda w.f(x)(w)](c), \\ [\lambda x \lambda w.g(x)(w)](a), & [\lambda x \lambda w.g(x)(w)](b), & [\lambda x \lambda w.g(x)(w)](c), \\ [\lambda x \lambda w.h(x)(w)](a), & [\lambda x \lambda w.h(x)(w)](b), & [\lambda x \lambda w.h(x)(w)](c) \end{array} \right\}$$

$$= \left\{ \begin{array}{l} \lambda w.f(a)(w), \lambda w.f(b)(w), \lambda w.f(c)(w), \\ \lambda w.g(a)(w), \lambda w.g(b)(w), \lambda w.g(c)(w), \\ \lambda w.h(a)(w), \lambda w.h(b)(w), \lambda w.h(c)(w) \end{array} \right\}$$

C is the result of the pointwise function application of the elements from set A to set B. This results in the alternatives from both A and B being represented in C. An interesting property of HFA is that the set created by applying the alternatives from A to B pointwise has all the alternatives of both A and B. Thinking about this syntactically, if a mother node α has two daughters, β and γ, and β is of the right type to apply to γ using HFA, the result of their combination, α, will have the alternatives of both β and γ.

2.3.3 Imprecision or vagueness?

Before starting the analysis of *sorta*, we should think about what kind of gradable meaning is implicated in the meaning of *sorta*. Namely, is *sorta* truly a slack regulator and working with pragmatic halos, a la Lasersohn, or is *sorta* regulating vagueness instead?

Comparing the intuitions with *sorta* to both vagueness and imprecision, we find that *sorta* behaves in some ways more like a vagueness regulator than a slack regulator. First, if *sorta* were a

slack regulator, we might expect it to combine freely with other types of expressions with exact meanings, such as numerals, expressions of time, and quantifiers. Indeed, we find approximators and slack regulators that do combine felicitously with expressions of these types, but *sorta* does not.

(43) a. Almost/approximately twenty people were in line.
b. *Sorta twenty people were in line.

(44) a. At around 3pm I will eat lunch.
b. *At sorta 3pm I will eat lunch.

(45) a. More-or-less every dog kissed a cat.
b. *Sorta every dog kissed a cat.

However, there are ways that it behaves like a slack regulator as well. Consider the adjectives *triangular* and *extinct*, which putatively have exact uses. *Triangular* and *extinct* are predicates that allow for what Pinkal (1995) calls natural precisifications — contexts in which the predicates can be easily forced to have exact interpretations.

(46) We need a shape which is triangular, but this Shape B won't do, since it has a small bend on one side.

(47) We need to find a species that is extinct, but Northern White Rhinos won't do, since there are still five left.

As shown in the (b) examples in (48) and (49), these adjectives do not have gradable senses. But, as shown in the (c) examples, both *triangular* and *extinct* can be modified by *sorta*, which might suggest that *sorta* does have a slack regulating meaning here.

(48) a. These shapes are triangular.
b. ??Shape A is more triangular than Shape B.
c. Shape B is sorta triangular.

(49) a. Dinosaurs are extinct.

b. ??Dinosaurs are more extinct than dodo birds.

c. Northern White Rhinos are sorta extinct.[13]

In contrast to precise adjectives like *triangular*, truly vague predicates do not allow for natural precisifications.

(50) ??We need a long rod for the antenna, but since long means 'greater than 10 meters' and this one is 1 millimeter short of 10 meters, unfortunately it won't work. (Kennedy, 2007)

Extinct and *triangular* also do not give rise to the Sorites Paradox, where in the Sorites Paradox the two premises P1 and P2 do not lead to the conclusion C (premise P2 is rejected in both). This fact also suggests that they do not have vague meanings. In contrast, a vague predicate such as *tall* does give rise to the paradox.

(51) P1: A person who is six feet tall is tall.

P2: A person who is one sixteenth of an inch shorter than a tall person is tall.

C: Therefore, a person who is three feet tall (or two feet tall, or one foot tall, etc...) is tall.

(52) P1: A species is extinct if it has no living members.

P2: A species with one more living member than an extinct species is extinct.

C: Therefore, a species with one hundred (or two hundred, or a thousand, etc...) living members is extinct.

(53) P1: A shape with three sides is triangular.

P2: A shape with one more side than a triangular shape is triangular.

C: Therefore, a shape with four sides (or five sides, or six sides, etc...) is triangular.

What this suggests is that *sorta* cannot only be regulating vagueness; the existence of uses of *sorta* with imprecise (rather than vague) predicates might suggest that *sorta* can be involved in regulating

[13] At the time of this writing, there were five Northern White Rhinos still alive.

both imprecision and vagueness. Where does this leave us in adopting a formalization such as that of Morzycki (2011)? Even if *sorta* has mixed behavior in terms of the types of meanings that it regulates (imprecision versus vagueness), Morzycki's proposal of putting a degree of precision parameter on the interpretation function is suitable here in that it captures a fundamental difference between different types of predicates: gradability is inherent in some expressions (particularly often in adjectives), but not in others (such as verbs). For the remainder of the chapter, I will make reference to a "degree of precision," but in the context of this debate it can be understood as indifference as to the exact type of meaning at work: vagueness or gradability. Rather, what is at stake is something different, namely which expressions are inherently gradable (or not) and how *sorta* can combine with those expressions which are not gradable.

2.4 Analysis

2.4.1 Prelude

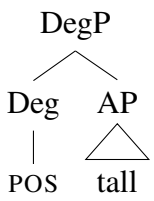
The intuition I pursue is to analyze *sorta* as a degree word. The reason for this comes from *sorta*'s cross-categorial behavior, combining with gradable and non-gradable adjectives as well as verbs and nouns. When combined with a gradable adjective, the reading available is akin to a degree reading. With non-gradable adjectives, verbs, and nouns, the reading becomes one of approximation to the predicate being modified. This suggests that, at its core, *sorta* is degree-related, but has coercive powers when used with predicates without a gradable interpretation.

The coercive power here is a consequence of pragmatic halos being sets of alternatives that resemble some core function. The role of *sorta* is to increase the size of a pragmatic halo in order to bring in more functions that approximate some other function. Using Morzycki's alternative semantics for pragmatic halos allows us to keep a degree semantics for *sorta* with both non-gradable and gradable predicates. Gradable predicates lexicalize degree arguments, which *sorta* can saturate. For non-gradable predicates, *sorta*'s combinatorial need to combine with a gradable predicate forces a typeshift. The effect of this typeshift is to make non-gradable predicates gradable by using their

imprecision parameter as a degree argument. In this way, *sorta* can saturate the new degree of precision argument of a non-gradable predicate.

Before beginning the analysis, I should state my assumptions. I assume an ontology with degrees, abstract units of measurement (Kennedy, 1999; Seuren, 1973; Schwarzschild & Wilkinson, 2002; von Stechow, 1984). I also assume that gradable adjectives such as *tall* lexicalize degree arguments and are relations between degrees and individuals (as in (55)). This move makes adjectives by themselves incomplete; they need to be saturated with a degree. A null morpheme POS is assumed to be present in the unmarked (absolutive) constructions (Cresswell, 1976; von Stechow, 1984; Bierwisch, 1989; Kennedy, 1999). The function of POS is to existentially quantify over degrees and supply a degree that meets a contextually supplied standard. For a gradable adjective, this makes it so that not only does someone have some height (which mere existential quantification over a degree would give you), but that someone also meets the standard. This matches our intuitions for what *tall* means; to be tall isn't to have just any height, but to meet the height for which we would call someone *tall*. A function **standard** is used in the semantics, which takes a gradable predicate as an argument and returns the degree in the context which represents the standard. Here, POS is assumed to be a Deg head, DegP being the extended projection of AP (Abney, 1987; Kennedy, 1999; Corver, 1990; Grimshaw, 1991). This is illustrated in (54)–(57).

(54)



(55) $[\![tall]\!] = \lambda d \lambda x[\mathbf{tall}(d)(x)]$

(56) $[\![\text{POS}]\!] = \lambda G_{\langle d,et\rangle} \lambda x \exists d[d \geq \mathbf{standard}(G) \wedge G(d)(x)]$

(57) $[\![\text{POS } tall]\!] = \lambda x \exists d[d \geq \mathbf{standard}([\![tall]\!]) \wedge \mathbf{tall}(d)(x)]$

Because I am working in a Hamblinized system, denotations will often be sets of alternatives rather

than functions. Assuming Morzycki's imprecision parameter and representing denotations with their halos, *tall* might be translated as in (58). The analysis will start without alternatives, but alternatives will be added when necessary.

(58) $[\![tall]\!]^{d',C} = \{f_{\langle d,et\rangle} : f \approx_{d',C} \lambda d \lambda x.\textbf{tall}(d)(x)\}$

Finally, it will be crucial for me to have access to the imprecision parameter. Following Morzycki, I assume a typeshift PREC, defined in (59) below.

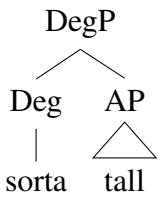
(59) $[\![\text{PREC } \alpha]\!]^d = \lambda d'.[\![\alpha]\!]^{d'}$

The PREC typeshift binds the imprecision parameter, turning any expression type τ into a function type $\langle d, \tau \rangle$. When necessary, I'll label PREC as a node in the syntax.

2.4.2 *Sorta* and gradable predicates

In previous sections, I highlight how *sorta* behaves as a degree word. I will consider it a degree word at heart and analyze it as one might analyze another degree word such as *very*. The syntactic assumption here will be that *sorta* heads a DegP, much like POS or *very* do under certain analyses, with an AP headed by a gradable adjective as its complement, as in (60). DegPs are predicative and are properties of individuals, and by assumption APs are relations between degrees and individuals. Syntactically and type-theoretically, this makes *sorta* comparable to POS.

(60)



How might we think about the semantic content of *sorta*? The most natural move is to keep the parallelism between *sorta* and POS; *sorta* should be of the same logical type as POS, as well as do something similar semantically. POS asserts the existence of a degree such that that degree meets a contextually provided standard, as well as saturating the individual and degree arguments of the AP

it combines with. The entailment to the standard with *sorta* is murky, however; what we might do is say that the degree quantified over is simply close to the standard. I define a 'close to' relation in (61), such that, for two degrees d and d', $d \lessdot d'$ is true just in case d is smaller than d' and d is close in value to d', as defined by the context. *Sorta* is defined as in (62), where α is a gradable adjective (type $\langle d, et \rangle$).

(61) $\forall d \forall d'$, $d \lessdot_{C,P} d'$ iff the value of d is close to d' as determined by the context C.

(62) (*Tentative*)
$[\![sorta]\!]^C = \lambda G_{\langle d,et \rangle} \lambda x \exists d\, [d \lessdot \textbf{standard} \wedge G(d)(x)]$

(64) demonstrates how *sorta tall* would work. For readability, I've suppressed the context parameter on $\lessdot$ and the argument to **standard**.

(63) Bill is sorta tall.

(64) a. $[\![sorta]\!]^C = \lambda G \lambda x \exists d\, [d \lessdot \textbf{standard} \wedge G(d)(x)]$

b. $[\![sorta\ tall]\!]^C$
$= \lambda x \exists d\, [d \lessdot \textbf{standard} \wedge [\![tall]\!]\,(d)(x)]$
$= \lambda x \exists d\, [d \lessdot \textbf{standard} \wedge \textbf{tall}(d)(x)]$

c. $[\![sorta\ tall]\!]^C\,([\![Bill]\!]) = \exists d\, [d \lessdot \textbf{standard} \wedge \textbf{tall}(d)([\![Bill]\!])]$

Additionally, although the analysis so far has been developed with gradable adjectives in mind, *sorta* also combines with gradable predicates that are not adjectives. A verb such as *respect* or *widen* is plausibly gradable, based on the the existence of a degree reading with a comparative. The reading available when *sorta* modifies VPs headed by these adjectives is what we would expect, given that these are gradable predicates; the examples in (66) have degree readings —*sorta respect* means "to respect a little bit" and *sorta widened* means "to widen a little bit." This is more support for *sorta*'s status as a degree word.

(65) a. I respect her more than you do.

b. This section of the street was widened more than the next section.

(66) a. I sorta respect her.

b. The road commission sorta widened the road.

To summarize, *sorta* can be analyzed as a variety of degree word using the standard tools from degree semantics. Syntactically and semantically, we can think of it as a cousin to POS, but rather than asserting that a degree exceeds the standard, *sorta* requires that a degree be close to but below the standard. The analysis here will form the core of the analysis of *sorta* with non-gradable predicates in the next section.

2.4.3 *Sorta* and non-gradable predicates

In the previous section I analyze *sorta* as a variety of degree word. The role of *sorta* is to assert that a degree is close to but lower than the contextually provided standard and to saturate the degree argument of the gradable predicate it combines with. If some predicate has a degree argument, this would be satisfactory. The issue that arises, though, is that most verbs and nouns aren't usually argued to lexicalize a degree argument. If *sorta* is a degree word, we need to ask what degree it is operating over when combined with non-degree predicates.

The clue that we can extend a degree analysis to non-gradable predicates comes from the approximative flavor of *sorta*. Recalling previous observations, constructions involving *sorta* and non-gradable predicates can be conveniently paraphrased with approximatives such as *close to* or *like*, as in (67). The way to look at the degree that *sorta* operates over with non-gradable predicates should be as a degree that represents how closely one predicate approximates another.

(67) a. I sorta kicked the ground.

'I did something like kicking the ground.'

b. He sorta swam over to the boat.

'He did something that was like swimming over to the boat.'

Approximation is what the imprecision parameter on $[\![.]\!]$ in Morzycki's formulation of pragmatic halos represents — a degree that represents how much objects in the pragmatic halo are allowed to approximate some object. A high degree of precision is a way of forcing objects in the pragmatic halo to more closely approximate some object, while increasingly lower degrees allow for less precision and correspondingly looser approximations. This approximation is accomplished with a relation $\approx_{d,c}$, which is true just in case two semantic objects resemble each other to at least some degree d in context c. The interpretations of constructions involving *sorta* and non-gradable predicates also suggest that looking at approximation in this way is on the right track. Intuitively, a construction with *sorta*, like *sorta swim*, involves something that resembles the modified verb in some way.

Swim can be used in many different ways that approximate a core concept of swimming (whatever that may be). What should be said, then, is that *sorta swim* (for example) isn't necessarily approximate to *swim*, but approximate to what 'counts' as swimming in the context. Needed is a notion of standards that includes not just the standards associated with adjectival scales, but also with degrees of precision. Drawing up the degree analysis of *sorta* from the previous section, the degree that *sorta* introduces must be close to and lower than the standard degree of precision for the context.

What I will assume is that the **standard** function is defined not only to return standards associated with adjectival scales, but also standards associated with the degree of precision. This requires **standard** to not only return standards for gradable predicates (type $\langle d,et\rangle$), but more generally for anything with a degree argument, such as properties coerced into gradable properties via PREC.

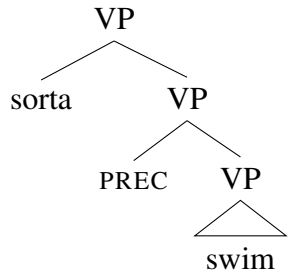
(68) $[\![\text{PREC } \textit{swim}]\!]^d$
$= \lambda d'.[\![\textit{swim}]\!]^{d'}$
$= \lambda d'.\{f_{\langle e,t\rangle} : f \approx_{d',C} \textbf{swim}\}$

With this in mind, what *sorta* does is existentially quantify over a degree close to but lower than

the standard degree of precision. This has the effect of lowering the degree of precision, in turn widening the pragmatic halo. Because we are dealing with alternatives now, our definition of *sorta* must be adjusted in order to pick a single alternative from the halo and apply it to the individual argument of *sorta*, as well as set the imprecision parameter to the new degree of precision. (69) reflects these changes, where the P argument is saturated by a PREC typeshifted property.[14] The denotation for *sorta* now also has set brackets surrounding it, reflecting the move to having an alternative semantics for every linguistic expression.

(69) $$[\![sorta]\!]^{d'} = \left\{ \lambda P_{\langle d,\langle et,t\rangle\rangle} \lambda x \exists d \left[d \lessdot \textbf{standard} \wedge \exists f \in P(d) \left[f(x) \right] \right] \right\}$$

(70)



(71) $$[\![sorta\ [\text{PREC}\ swim]]\!]^{d'} = [\![sorta]\!]^{d'} \left([\![[\text{PREC}\ swim]]\!]^{d'} \right)$$
$$= \left\{ \lambda x \exists d \left[\begin{array}{c} d \lessdot \textbf{standard} \wedge \\ \exists f \in [\![\text{PREC}\ swim]\!]\,(d)\,[f(x)] \end{array} \right] \right\}$$

For concreteness, we can substitute $[\![\text{PREC}\ swim]\!]\,(d)$ with the halo of *swim*. The degree argument of $[\![\text{PREC}\ swim]\!]$ is saturated by d, creating a set of alternatives that represent **swim** to at least degree d, as demonstrated in (72). Examples of these alternatives are explicitly represented in (73). (Arguments have been suppressed where possible for readability.)

(72) $$[\![(70)]\!]^{d',C} = \left\{ \lambda x \exists d \left[\begin{array}{c} d \lessdot \textbf{standard} \wedge \\ \exists f\colon f \in \{ f_{\langle e,t\rangle}\colon f \approx_{d,C} \textbf{swim} \}\,[f(x)] \end{array} \right] \right\}$$

[14] The unusual type — $\langle d, \langle et,t\rangle\rangle$ — is a result of the VP denoting a set of functions rather than a single function.

$$(73) \qquad [\![(70)]\!]^{d',C} = \left\{ \lambda x \exists d \left[d \prec \textbf{standard} \wedge \exists f\colon f \in \left\{ \begin{array}{c} \textbf{swim}, \\ \textbf{float}, \\ \textbf{wade}, \\ \ldots \end{array} \right\} [f(x)] \right] \right\}$$

As mentioned in section 2.2.2, *sorta V* does not have entailments to *V*. The reasons for this are now apparent; because the halo around the verb was expanded, there are many functions within the halo that *sorta* can choose from. Not all of these options are within the original halo of the verb, as set by the standard degree of precision. Since *sorta* is free to choose any function, the entailment to the verb disappears.

To summarize, *sorta* does a couple of things. First, it existentially quantifies over degrees that are close to the standard degree of precision for the context, with the purpose of widening the pragmatic halo of the object it is combined with. As *sorta* requires a gradable predicate to combine with, non-gradable predicates are coerced into gradable predicates via the PREC typeshift. Next, the degree of precision of the non-gradable predicate that *sorta* is combined with is set to the degree quantified over by *sorta*. This creates a set of alternatives that at least *d*-resemble the predicate that *sorta* is modifying. Finally, a function is picked from this halo and applied to the individual argument of *sorta*. Although the examples above are for verb phrases of type $\langle e,t \rangle$, we can see that this will generalize to other expressions that are property-denoting, including nouns and non-gradable adjectives.

2.4.4 Context-dependence and *sorta*

This analysis predicts that *sorta* should be doubly context sensitive, first regarding the standard degree and second regarding the $\approx$ relation. At an intuitive level, these two loci for context dependence deal with the degree of similarity between predicates (e.g., are two predicates very much similar or only somewhat similar?), and the particular ways in which things can be similar.

Let's consider first the context parameter on $\approx$. As pointed out by Goodman (1972), any two

objects have infinitely many properties in common, making similarity a useless notion if we are simply talking about common properties. What is needed for similarity is to be similar in particular respects; in order to determine whether two objects are similar, it is necessary to have some fixed respects in mind. What the context parameter in this case does is determine what respects we are talking about when we are judging whether two objects are similar.

Taking the predicate *sorta swim*, if we vary contexts we can see that the felicity and interpretation of *sorta swim* depends on what respects are being used to judge similarity. For the verb *swim*, these respects might have to do (for example) with doing the activity in the water and moving one's arms and legs in a particular way. If we consider a situation where a child is learning how to swim in a pool, it is appropriate to use *sorta swim* even if the child was just practicing floating because floating is similar to swimming in that they both occur in the water. However, different respects can be relevant in other situations. If one is playing charades and demonstrating swimming, we can use *sorta swim* to describe the situation if they are moving their arms in a way that is reminiscent of swimming. Even though charades isn't being played in the water, *sorta swim* can be used because the context has determined that was is relevant in the situation is not that the action took place in the water, but that the player's arms were doing something similar to what is done when one swims.

If we hold the respect(s) under consideration constant, the effect of context on the standard also becomes apparent. To see this, consider the VP *kick the ball*. Kicking the ball requires, in terms of respects, some movement of the foot and leg and making contact with the ball. Infants, semanticists, and professional soccer players can all kick balls — they can move their feet and legs in a particular fashion to make contact with the ball. This is the bare minimum for what it means to kick a ball, the loosest context in which we will say that someone kicked a ball. However, if we want to talk about what professional soccer players do during soccer games, which has the effect of increasing our standard as to what counts as kicking, it becomes harder to count what an infant is doing as kicking a ball (particularly if there is very little movement of the ball when the infant kicks it).

In sum, descriptions using *sorta* are context-dependent in at least two ways: first, by virtue of what respects matter for similarity within a context, and second by virtue of the standards we set for

whether a predicate counts as similar or not. These are independent from each other. Holding the standard constant while varying the respect, we can see that different situations call for different respects to be examined (as in the *swim* case). And, if the respect is held constant but the standard manipulated, the threshold for what counts for a particular predicate can be changed (as in the *kick* case).

2.4.5 Revisiting gradable predicates

In section 2.4.2, *sorta* is analyzed as a degree word. In section 2.4.3, this analysis is further developed so that *sorta* can play a degree role in the absence of a lexicalized degree. Two technical moves make this work: the PREC typeshift is applied to a non-gradable predicate in order to coerce gradability where none existed before, essentially building a gradable predicate out of a non-gradable one, and *sorta* existentially quantifies over a set of alternatives in order to pick a single alternative. The question that needs to be answered is whether the move of making *sorta* sensitive to alternatives creates any problems for the original analysis of *sorta* as a degree word.

A Hamblinized denotation for *tall* might look as in (74). Somewhat unconventionally for this chapter, I've translated *tall* as a singleton set rather than using the set builder notation and $\approx$. One reason for this is purely expository, a wish to keep the moving parts to a minimum. However, there is also a less innocent but more interesting reason here as well: it's simply not clear what the alternatives to *tall* would be, at least under normal circumstances. Plausibly, this is related to *tall* being an adjective with only a single dimension of measurement: there is only one way in which we can determine whether someone is tall (i.e., what their height is).

(74) $\quad [\![tall]\!]^{d'} = \{\lambda d \lambda x.\mathbf{tall}(d)(x)\}$

In order to make *sorta* combine with a Hamblinized adjective, the type for *sorta* has to change: *sorta* needs to combine with a set of gradable functions and an individual, making it type $\langle\langle\langle d,et\rangle,t\rangle,\langle e,t\rangle\rangle$. This type is different than the type of *sorta* for when it combines with a non-gradable predicate (type $\langle\langle d,\langle et,t\rangle\rangle,\langle e,t\rangle\rangle$)

(75) $[\![sorta]\!] = \lambda G_{\langle\langle d,et\rangle,t\rangle}\lambda x\exists d\,[d \prec \textbf{standard} \wedge \exists g \in G\,[g(d)(x)]]$

There is a wrinkle here, however: although *sorta* is intuitively looking for something gradable to combine with in all cases, the source of this gradability is different. For gradable adjectives and other gradable predicates, the gradability is located within the predicate, and hence it's each member of the set that *sorta* combines with that has a degree argument. However, with non-gradable VPs, this changes; the gradability is located outside of the alternatives, due to the application of PREC.

What this means is that the denotation *sorta* is dependent on what type of constituent it combines with. If the gradability is coerced, such as in the case of many VP constituents, one denotation must be used. If there is inherent gradability in what *sorta* combines with, however, then a different denotation is used. The disjunctive denotation in (76) reflects this.

(76) $[\![sorta]\!] = \begin{cases} \lambda F_{\langle d,\langle et,t\rangle\rangle}\lambda x\exists d\,[d \prec \textbf{standard} \wedge \exists f \in F(d)\,[f(x)]] \\ \lambda G_{\langle\langle d,et\rangle,t\rangle}\lambda x\exists d\,[d \prec \textbf{standard} \wedge \exists g \in G\,[g(d)(x)]] \end{cases}$

Although this sort of ambiguity isn't ideal, it's worth noting that these two denotations still have much in common. First, in both, the intuition is that *sorta* is looking to combine with a gradable property — the difference is in where this gradability is located. Second, this property gets applied to some individual. Finally, and most importantly, *sorta* lowers the standard in both denotations. Even though the denotations are different in their technical details, the intuition that *sorta* is affecting the standard remains in both.

2.4.6 PREC and alternative formulations of *sorta*

2.4.6.1 *Much* worries

Adding a typeshift to our toolkit isn't a step to take lightly; there are well-founded worries about what making this kind of move means for our theory of grammar. One worry is whether a new typeshift such as PREC should be used, or if there is another typeshift that can be used to accomplish something similar. One possibility is *much*, which is arguably a gradability inducing typeshift. As

observed by Bresnan (1973) and Corver (1997), *much* surfaces as a dummy adjectival element (*much*-support) in examples such as (77) and (78).

(77) a. I love her very much.

b. It was very much a secret.

(78) John is fond of Mary, and Bill is very much so.

(79) The balloon ascended as much as the kite did.

But, there are some differences that make assimilating PREC to *much* hard. For one, *sorta* appears without *much* in examples like (80). If *much* is part of the meaning of these constructions, we have to explain why it appears covertly. In adjectival contexts, *much*-support occurs when there is ellipsis, but there is no *much*-support necessary for *sorta* (see (81)).

(80) a. I sorta love her.

b. It was sorta a secret.

(81) a. John is very fond of Mary, and Bill is very much so, too.

b. John is sorta fond of Mary, and Bill is sorta (*much) so, too.

Another point in favor of *sorta* behaving different at the syntactic level is that it must appear to the left of the constituent it modifies, unless it has been extraposed (signaled through intonation or a comma in writing). Comparing *sorta* to *very much*, we do not see such as restriction.

(82) *I love her sorta.

(compare to: I love her, sorta.)

Finally, according to Bresnan (1973), the English adjectival comparative incorporates a covert *much*, and a related proposal can be found for verbal comparatives in **?**. In (83), the comparative gives us an interpretation where we compare quantities, suggesting that what *much* is doing in the comparative is allowing the comparative morpheme to access a quantity scale. This can be

compared to (84), where *sorta* builds an interpretation where we implicitly compare similar kinds of events (say, events that are like running or like sleeping in some way). Although a quantity interpretation doesn't appear to be completely ruled out[15], the comparative examples do not allow the "similarity" interpretation. If *much* is what coerces gradability with *sorta*, we should expect the same types of readings with both the comparative and *sorta*.

(83) a. John ran more than Mary. ✓QUANTITY, *KIND

b. Bill slept more than Sue. ✓QUANTITY, *KIND

(84) a. John sorta ran. ??QUANTITY, ✓KIND

b. Bill sorta slept. ??QUANTITY, ✓KIND

Furthermore, examples with *very much*, where *much* is clearly present, also do not give rise to the same kind of reading as *sorta*.[16] (85) has the same type of quantity reading as in (83a) and (83b). Again, if *much* were at play in examples with *sorta*, we should expect sentences like (84a) and (84b) to also have similar quantity readings.

(85) a. John didn't run very much.

b. John didn't sleep very much.

In sum, although it would be theoretically nice to reduce PREC to actually being a case of a covert *much*, doing this presents some difficulties.

[15]For instance, *sorta sleep* seems to have a reading available that is akin to "did some small amount of sleeping."

[16]This is complicated by the fact that *very much* is either marked or unacceptable in non-negated sentences:

(i) ??John ran very much.

(ii) *John slept very much.

2.4.6.2 PREC in *sorta*?

A second worry about the current formulation of *sorta* is whether degrees of precision should be accessible from outside of *sorta*, or whether it should be *sorta* itself that access the degree of precision. In other words, do we want the PREC typeshift, which makes available the degree of precision, to be separate from the meaning of *sorta*, or should it somehow be incorporated into it? I argue that PREC really should be considered as a separate component from *sorta* and not be incorporated into its meaning.

The first argument that PREC should be separate from *sorta* concerns its interpretation with gradable adjectives. As a typeshift, PREC appears when there is a type incompatibility between *sorta* and the expression it is combining with — namely, *sorta* is trying to combine with something of type $\langle e,t\rangle$[17] when it requires a gradable expression, type $\langle d,et\rangle$. What we see is that *sorta* invokes a meaning shift with expressions that are not gradable (*sorta swim* invokes predicates that are like *swim*), but that no such meaning shift happens with predicates that are already gradable; it is difficult to find examples where *sorta tall* could mean *wide*, for instance (*sorta tall* instead means "tall to some degree *d* that is close to but lower than the standard"). This suggests that the meaning of PREC isn't part of the meaning of *sorta*, for if it were, we would expect meaning shifts to be available for whatever *sorta* combined with.

Second, we might worry about a proliferation of degree of precision interpretations were PREC to be separate from *sorta*. On the face of it, this would appear to militate against PREC being a separate meaning component. If we can find other morphemes that seem to also have a degree of precision interpretation associated with them, however, this becomes an argument that PREC should be separate, as it can be used more generally. I offer up two cases where it seems that a typeshift like PREC might be used.

The first concerns the degree morpheme *-ish* (Sugawara, 2012). In addition to its adjectival uses, where *-ish* quantifies over a degree that doesn't meet the standard, there are uses where it attaches to other categories such as nouns, numerals and time-denoting expressions, and as noted by Bochnak

[17] Or more technically, a set of functions, each of which is type $\langle e,t\rangle$.

& Csipak (2014), propositions.

(86) a. He's very boyish.

b. He acts very childish.

(87) a. I'll be visiting in twenty-ish days.

b. I saw him around six-ish.

(88) a. I liked the movie ...ish.

b. Lee drew a circle ...ish.

c. They won the match ...ish.

Sugawara proposes a degree semantics for *ish*, and Bochnak and Csipak follow Sugawara in offering up a degree semantics analysis for *ish*. To account for how *ish* can be a propositional modifier when it has a degree meaning at its core, on this version of the analysis they suggest that PREC opens up the degree of precision parameter of the proposition, before the propositions combines with *ish*. The effect of *ish* is to lower speaker commitment to the proposition expressed, due to the lowering of the degree of precision. In (89), *ish* applies to a proposition that has a degree of precision argument opened by PREC, and returns a set of propositional alternatives.

(89) $[\![ish]\!]^d = \lambda p_{\langle d,st\rangle}.\{\lambda w.\text{MAX}\{d' : p(d')(w)\} < d \wedge \textbf{small}_c(d-d')\}$ (Bochnak & Csipak, 2014)

For the second case, we consider non-canonical uses of the degree word *very*. Although *very* usually has an ad-adjectival use, where it appears with gradable adjectives (Klein, 1980; Kennedy & McNally, 2005), there are both ad-nominal uses with non-gradable nouns, and uses with ordinal numbers, which are considered non-gradable. To illustrate, certain nouns like *center* allow *very* to intensify the meaning of the noun. Ordinal numbers like *first* also allow modification with *very*, again with a reading where *very* gives the ordinal a stricter interpretation. What we might consider this to be is an imprecision-related use of *very*, where *very* increases the amount of precision in the

interpretation of the noun or ordinal.

(90) a. the very center of the Earth

b. the very front of the line

(91) He is the very first person in line.

The observation that *very* has a degree-related and precision-related sense makes it behave in some ways like *sorta*. One analysis is that *very* in all cases is degree-related. In the non-canonical cases where *very* acts as an ad-nominal modifier and as a modifier to an ordinal number, *very* makes reference to degrees above the standard. However, the standard here is a standard of precision, and *very* has the effect of increasing the degree of precision for the modified expression. This would make *very* look in some ways like the opposite of *very*, where it increases the degree of precision rather than lowers it. I will pursue a fuller analysis of this in the next chapter, making use of the same tools in this chapter.

Furthermore, adjectives such as *extinct* and *triangular* are often considered precise and non-gradable, but it is not impossible to find what look to be gradable uses of them as well, such as in (92). For *quite extinct*, the scale appears to a scale of similarity to extinctness, with *quite extinct* falling at the top of the scale. This also appears to be what is happening with *very triangular*, where the shape of the formations resembles a triangle to a high degree. An analysis of these kinds of facts could also be given using PREC, where PREC coerces the non-gradable predicate into a gradable predicate by opening up the degree of precision argument. These would not be cases of scalar coercion per se, where a non-gradable predicate is given some gradable meaning by reinterpreting it, but they would rather be cases where the grammatical machinery allows for them to be interpreted with respect to a degree of precision, due to degrees of precision being part of the grammar.

(92) a. It should be assumed therefore that this species is quite extinct in the Pieniny Mountains.

b. Adjacent V-shaped valley formations give the remaining fault spurs a very triangular shape.

The cases of *-ish* and *very* show that, as we might expect, PREC might also be present in other sorts of constructions where the element being modified is traditionally thought of as being non-gradable. Together with the conceptual argument that putting PREC inside the meaning of *sorta* would make it difficult to get the standard degree word-like interpretation, this suggests that PREC should be a typeshift separate from *sorta*.

2.4.7 Hedging objects

In the previous section, I developed an analysis of how the verb may be hedged. The analysis depends on linguistic expressions having sets of alternatives available, alternatives that model Lasersohn's pragmatic halos. For instance, for a verb such as *swim*, each alternative is a function that resembles the core meaning of *swim*, the function **swim**, to some degree. The entire set of alternatives is a set of resembling alternatives that is ordered by their degree of resemblance to some function. What *sorta* does in this case is to lower the degree needed to be part of the set of resembling alternatives, by manipulating a degree of precision on the interpretation function.

But, as described earlier, *sorta* can also hedge the direct objects of some predicates. The question is how to get this kind of behavior with *sorta*, how *sorta* can hedge a direct object even when it doesn't merge with the direct object. The answer, I suggest, comes from the architecture of the Hamblin semantics assumed here.

In this system, denotations are represented as sets of alternatives that grow or shrink depending on the degree of precision. In the previous section, verbs (and verb phrases) were represented in this fashion, but we should expect that nouns (and noun phrases) are represented in this way as well, and this is precisely how Morzycki (2011) handles metalinguistic comparatives with nominals rather

than adjectives. The denotation for *house*, for instance, would be represented as in (93), a set of functions f such that each resembles **house** to degree d.

(93) $[\![house]\!]^d = \{f : f \approx_{d,C} \textbf{house}\}$

If nominals also have sets of resemblance alternatives, the problem of how *sorta* can hedge a direct object becomes the problem of how *sorta* has access to these alternatives. Put simply, the alternatives for the direct object have to "project" up to the VP level in order to be visible to *sorta*. The mechanism to do this is already available using an alternative semantics.

The intuition formalized as Hamblin Function Application was to apply each function from one set of alternatives pointwise to its arguments in another set of alternatives. This creates a new set of alternatives with the alternatives of both the predicate and its argument. For concreteness, $[\![build\ a\ house]\!]^d$ would be represented as in (94), with the alternatives from $[\![build]\!]^d$ applying pointwise to the alternatives for $[\![house]\!]^d$.[18]

(94) $[\![build\ a\ house]\!]^d = \{b(h) : h \in [\![house]\!]^d \wedge b \in [\![build]\!]^d\}$

Since $[\![build\ a\ house]\!]^d$ will have the alternatives of both $[\![build]\!]^d$ and $[\![house]\!]^d$, this solves the issue of how *sorta* has access to the alternatives of *house*. Quite simply, the alternatives from *house* will continue to project upwards to the VP level. Through this compositional process, HFA, the alternatives at a lower node in the syntax can project to higher nodes in the syntax. Abstracting away from the precise translation of *build* and *house*, the alternatives for *build a house* might project as in (95).

(95)
$$\left\{ \begin{array}{ll} \lambda x[\textbf{build}(x)(\textbf{house})], & \lambda x[\textbf{build}(x)(\textbf{shack})], \\ \lambda x[\textbf{piece–together}(x)(\textbf{house})], & \lambda x[\textbf{piece–together}(x)(\textbf{shack})] \end{array} \right\}$$

$$\left\{ \begin{array}{l} \lambda f \lambda x[\textbf{build}(x)(f)], \\ \lambda f \lambda x[\textbf{piece–together}(x)(f)] \end{array} \right\} \quad \left\{ \begin{array}{l} \textbf{house}, \\ \textbf{shack} \end{array} \right\}$$

[18] I assume that the singular indefinite article *a* has no semantic contribution here, so that $[\![house]\!]^d = [\![a\ house]\!]^d$.

If we suppose that *sorta* adjoins quite high within the VP (not unreasonable given its position before the verb), it should have access to the alternatives of other elements inside the VP. As (20) and (21) show, this is true, where indirect objects and lower adjuncts can be targeted by *sorta*. This would require no special mechanism, as the alternatives from nominals in these syntactic positions would all continue to project upward until being captured by *sorta*.

To summarize, *sorta* can modify the direct objects of verbs even when it hasn't merged with the direct object due to the mechanics of a Hamblin semantics. The reason for this comes from the behavior of Hamblin Function Application. HFA applies predicates from one set pointwise to arguments in a second set, creating a third set. This set contains all the alternatives from the first and the second set; in essence, HFA allows the alternatives from the direct object to percolate upward throughout the course of the derivation. Worth reflecting on is that this behavior comes for free, since HFA is independently necessary in this framework. All things being equal, if alternatives are grammatically represented and certain expressions are sensitive to alternatives, we should expect cases of apparent non-local relationships between some expressions and alternative sensitive elements. Finding that *sorta* exhibits this behavior (albeit in limited ways) is less surprising in light of the alternative semantics I've adopted.

2.5 Discussion

2.5.1 On the connection between *sorta* and other approximators

In section 2.2.4, I show that *sorta* isn't equivalent to *almost*, based on their distributions. However, as the analytical intuition pursued here involves *sorta* having an approximative meaning, it is instructive to consider how *sorta* is similar to other approximatives such as *almost*, as well as other hedges like *like*.

Sadock (1981) proposes an intensional semantics for *almost*, involving a relation between the evaluation world and a similar possible world and an assertion that the proposition occurs in a similar possible world (as in (96)). Given this formulation of *almost*, it should be logically

possible for the proposition to hold in the evaluation world as well. Sadock suggests that the sense that the proposition does not hold in the evaluation world (sometimes called the polar component (Horn, 2002)) comes from a Gricean quantity implicature: *almost p* is weaker than p, and a scalar implicature $\neg p$ arises due to the fact that *almost p* but not p was uttered.

(96) $[\![almost]\!] = \lambda w \lambda p_{\langle s,t \rangle} \exists w'.w'$ is not very different from $w \wedge p(w')$ (Sadock, 1981)

Penka (2006) criticizes this implementation with the observation that the polar component of *almost* seems stronger than a scalar implicature. (97a) contrasts with (97b), which suggests that canceling the inference negative inference of *almost* is much harder than normally observed for scalar implicatures, and in turn suggests that the negative inference arises through some other mechanism besides scalar implicature.

(97) a. ?Not only did Bill almost swim the English Channel, he did swim it.

b. Not only did Bill eat some of the cake, he ate all of it. (Penka, 2006)

Penka proposes the denotation in (98) in order to account for this. In Penka's denotation, the polar component is lexicalized in the meaning of *almost*, and *almost* involves comparison to alternatives via $\approx$ 'close to'.

(98) $[\![almost_{\approx}]\!] = \lambda w \lambda p_{\langle s,t \rangle}.\neg p \wedge \exists q[q \approx p \wedge q(w)]$ (Penka, 2006)

What's instructive to point out are the similarities and differences between *almost* and *sorta*. Accounts of *almost*, such as those of Sadock and Penka, generally give an intensional semantics to *almost*, where the truth of a proposition is stated with respect to a world sufficiently similar to the evaluation world. This contrasts with *sorta*, where the alternatives generated as closely resembling predicates. Although a possible world semantics could in practice be given for the machinery I hide behind $\approx$, overt reference to possible worlds is dispensable here.

Focusing on the polar component of *sorta*, we can contrast the ability to suspend the negative inference with *sorta* against that of *almost*. (99) shows that the negative inference can in fact be

suspended, suggesting that it has the weak status of an implicature and is not entailed.

(99) Bill is not only sorta tall, he is tall.

(100) ??Bill not only sorta swam to the boat, he did swim to the boat.

(100) is puzzling if it is in fact the case that the negative implication has the status of an implicature, since in this example the implicature cannot so readily be suspended. I argue that this is not problematic, if we consider the sort of scale that is present in these two different uses of *sorta*. In the first use of *sorta* where it hedges the adjective *tall*, there is a degree scale present. An important fact about degree scales is that if an individual holds a degree high on the scale, lower degrees also hold. This contrasts with the resemblance scale present in (100) due to $\approx$. Although the alternatives form a scale ordered by resemblance in this case, no alternative necessarily entails an alternative lower on the scale. In the case of (100), *swim to the boat* does not entail *sorta swim to the boat*; these must be predicated of separate events. The oddness of (100) comes from this multiple predication of events. In essence, what the speaker has tried to do is say that both predicates hold of the same event. Clearly, this is impossible, since one event cannot be both a "sorta swimming" and a "swimming." However, the example in (99) works due to the entailment patterns possible with degrees; there is no contradiction to say that an individual holds a higher degree and a lower degree of some property.

Comparing *sorta* to other hedges, the most apt comparison is between *sorta* and Siegel (2002)'s analysis of *like*. Basing her analysis on the intuition of that of Schourup (1985), which is that *like* expresses a minor nonequivalence between what is said and what is meant, Siegel proposes an analysis of *like* that is closely related to my own analysis of *sorta*, whereby *like* introduces a free variable that is restricted to the pragmatic halo of some constituent.

However, the distribution of *like* is somewhat more free than the distribution of *sorta*. As Siegel shows, *like* can be used to weaken the force of a quantificational determiners such as *every* (see (101a)). This is quite simply impossible with *sorta*. In a sluicing context, as in (102), it is much more apparent that the force of the determiner is weakened. Siegel (as well as Schourup (1985) and Underhill (1988)) shows that *like* can appear in a variety of places in a sentence and hedge

nearly any type of constituent, but my analysis shows that *sorta* is much more restricted as well, appearing only with verb phrases, adjective phrases, and noun phrases (in a limited fashion). *Like* can more generally modify noun phrases in a way that *sorta* can't, including a noun phrase with a cardinal number (103), where the number itself can be hedged. Like *sorta*, however, *like* creates truth-conditional differences where none existed before; both *sorta* and *like* seem to bring some aspect of the pragmatics into the truth-conditional semantics.

(101) a. Lana hates, like, every coach. (Siegel's (54a))

b. *Lana hates sorta every coach.

(102) a. *They spoke to every student, but we're still wondering (exactly) who. (Siegel's (36a))

b. They spoke to, like, every student, but we're still wondering (exactly) who. (Siegel's (36b))

c. *They spoke to sorta every student, but we're still wondering (exactly) who.

(103) A: He has, like, six sisters.

B: Yes, he has about six sisters.

(104) *He has sorta six sisters.

What this keys into is a deeper difference between what *sorta* does and *like* does, consistent with my analysis of *sorta*. The cross-categorial facts present in my discussion of *sorta* strongly suggest that *sorta* requires, first, a gradable predicate of some sort and second, an object that, once its degree argument is saturated, has a property-type denotation. *Like* does not have this restriction; for whatever reason, *like* is as happy with non-gradable predicates as it is with gradable predicates. The moral is that if *like* involves a Lasersohnian pragmatic halo at some level of analysis, the mechanism mediating the halo for *like* could very well be quite different than the mechanism used with *sorta*, due to the lack of any sort of gradability requirement with *like*. The differences (and similarities) between these two hedges deserves further examination.

2.5.2 Modulating standards

The suggestion in previous suggests has been to think of *sorta* as making reference to a contextually supplied standard. This makes *sorta* similar in form to another standard regulating morpheme, POS (also called ABS in some work). The role of POS in the flavor of degree semantics I've assumed is to saturate the degree argument of a gradable adjective with a degree that meets a contextually supplied standard. *Sorta* has a similar function in the story I tell here, where it saturates the degree argument of a gradable predicate (whether it is a gradable adjective with an inherent degree argument or a predicate coerced into gradability via POS) with a degree that is merely close to a contextually supplied standard.

(105) $[\![\text{POS}]\!] = \lambda G_{\langle d,et\rangle}\lambda x \exists d[G(d)(x) \wedge d > \textbf{standard}]$

Analyses of other degree words have involved comparison to a standard. *Very* can be analyzed in this way, where *very* asserts that a degree is very high above a contextually supplied standard (106). (The $!>$ relation can be thought of as "significantly greater than.") The effect is to remove any question of whether the individual is close to the standard.

(106) $[\![very]\!] = \lambda G \lambda x \exists d[G(x)(d) \wedge d !> \textbf{standard}]$

Because POS is thought to entail that an individual meets or exceeds a contextually defined standard, Fara (2000) suggests that POS is the locus of vagueness resolution within the adjective phrase. She suggests that not only does the use of POS entail meeting or exceeding a standard, but that it also entails exceeding the standard by a saliently large amount in the context, an amount large enough to meet interlocutors' interests regarding the cutoff points for gradable properties. Her formulation is adapted in (107) below, where **norm** is a function from gradable predicates to degrees, and $\not\rhd$ is a "saliently greater than" relation.

(107) $[\![\text{POS}]\!] = \lambda G_{\langle d,et\rangle}\lambda x \exists d[G(x)(d) \wedge d \not\rhd \textbf{norm}(G)]$ (Adapted from Fara (2000))

If, as Fara suggests, vagueness is regulated within the POS morpheme by asserting that a degree

is saliently above a standard, we might expect to find morphemes where the opposite holds true, that is, morphemes where a degree is asserted to be merely close to the standard and even within a band of vagueness surrounding the threshold between meeting and not meeting the standard, as determined by the interests of the interlocutors. Intuitively, *sorta* may act like this. The formulation I propose for *sorta* requires that *sorta* existentially quantify over a degree close to the standard. If we think about the $\lessdot$ relation as taking into account the interest of the speaker in increasing (rather than decreasing vagueness), it would seem to be the inverse of Fara's $\rhd$ relation. This would explain speaker intuitions concerning statements such as *sorta tall*; *sorta tall* is true just in case the speaker isn't sure whether an individual definitely counts as tall.

Provided that *sorta* does regulate imprecision, it suggests that both imprecision and vagueness need similar types of machinery for managing contexts. Here, that machinery is degree semantics and a function from gradable predicates and contexts to degrees. The dual role of *sorta* here is evidence that standards play a part in both imprecision and vagueness; within the AP, *sorta* acts as a vagueness regulator and does not care about imprecision at all. However, in a context where degrees must be coerced, pragmatic halos and imprecision must be involved. *Sorta*'s denotation does not change to reflect this; rather, the same mechanism — a **standard** function — works to modulate standards with both imprecision and vagueness.

2.5.3 What is similarity?

So far, we have treated similarity as a primitive notion, a logical operation that can compare whether two objects of the same type are similar to each other. What similarity itself is has been unexplored, however. In this section, I will try to give a few indications of what similarity is. This will help us better understand what objects we're generating when using *sorta*.

First, similarity is a problematic notion, as Goodman (1972) notes. One reason for this is that, if we reduce similarity merely to the possession of common properties, any two objects can be regarded as being similar to each other due to there being infinitely many properties that things can have in common. Furthermore, similarity is a trivial notion if not relativized to some particular

aspects — in deciding whether two objects are similar to each other, certain properties are privileged over others in making the comparison. This is quite clear if we compare the capital letter 'A' and the standard symbol for the universal quantifier ∀. If our goal is to simply compare the two based on shape, they are very similar to each other, with the symbol for the universal quantifier being 'A' with a 180 degree rotation, but if our goal is comparing them for the purposes of how they behave in first order logic, they are not similar at all.

Prototypes have been invoked as one idea of how similarity can be modeled (Rosch (1975); also see Kamp & Partee (1995) for an explicit semantic theory of prototypes), but there is a worry is that prototypes themselves are lacking in explanation, namely about what it means for two objects to share the same prototype. Although penguins and robins are both birds, why are robins considered to be more prototypical of birds than penguins? An answer to this has been that prototypicality is based on dimensions.

Dimensions are familiar to semanticists in work on adjectival semantics: Bierwisch (1989) notes that some adjectives allow for more than one way of being measured. An adjective like *healthy* has as part of its satisfaction criteria that an individual is healthy if they are healthy in all the dimensions that go into being healthy, such as blood pressure, cholesterol, weight, and so on. This contrasts with its antonym *sick* where, although there are also many dimensions to measure being sick, and individual counts as sick if they are sick in any of those dimensions. This multidimensionality is also present in other adjectives like *large*, which when applied to cities, can measure either the population or the geographic extent of the city.

But multidimensionality also exists in the semantics of nouns as well. A bird is a bird by virtue of having certain measurements along the dimensions of WINGS, BEAK, FEATHERS, WARM BLOODED, and many other dimensions. As Sassoon (2013) points out, though, the dimensions inherent to a noun like *bird* differ from those in an adjective like *healthy* in a key respect. Adjectival dimensions appear to be bound by logical operators: to be healthy means that, across all respects of health, an individual is healthy; to be sick means that there is a respect with which an individual is not healthy. Sassoon argues that nominal dimensions are not bound by logical operators, but that

each dimension is given a weight and the measurements across dimensions are averaged to give a measure of the distance of some individual from a prototype. For example, what it means to be a bird is to not be more than some distance *d* from the prototype of bird.

What Umbach & Gust (2014) point out is that what underlies judgements of similarity cannot be comparisons among properties themselves — a notion needed in discussing similarity is that of dimensions or respects, ways in which individuals can be measured. Dimensions are not properties, however, but can be transformed into properties by combining them with some value. For instance, a book can be measured along the dimension of COLOR, with possible values being 'green', 'red', and so on. However, the dimension COLOR is different from the properties **green**, **red**, and so on, in that properties are true or false of an individual.

Umbach & Gust (2014) consider dimensionality in their analysis of what they call similarity demonstratives, where their analysis of nominals is similar to Sassoon's. They use the concept of a generalized measure function, which measures an individual along multiple dimensions (rather than a single dimension), mapping the individual to a point in a multi-dimensional space (Gärdenfors, 2000). Classification functions corresponding to natural language predicates determine the thresholds needed for a predicate to hold. For concreteness, suppose that the predicate *car* has as its dimensions NUMBER OF DOORS, ENGINE TYPE, HORSEPOWER, and so on. A generalized measure function μ_{car} measures individuals along these dimensions, and the classification function $\mathbf{car}^*$ checks whether a tuple of values meets the threshold for being a car.

A challenge for theories of similarity is how to make similarity a gradable notion. For *different* and *like*, Alrenga (2006) supposes measure functions that measure differences or similarities between individuals, making them on par with other gradable adjectives. For Japanese *rashii*, *yoo*, *mitai*, McCready & Ogata (2007) argue that these adjectives quantify over properties that are stereotypical of the nominal they combine with. Individuals can then be ordered based on how many properties stereotypical properties they satisfy. However, measuring similarity based on the number of properties that are satisfied overlooks one issue that some properties are more important for determining similarity than others. Suppose that there are three properties that matter for being

a bird: having feathers, having a beak, and having wings. If the number of properties is what matters, we might rank a featherless, beakless bird as being less bird-like than a wingless bird. My intuition on this matter is that a wingless bird is rather less like a bird than a featherless, beakless one, however, suggesting similarity needs to also take into account the importance of properties. Additionally, properties themselves are also too particular to measure similarity. A five door car and a six door car are not stereotypical of cars in general, but holding all other possible properties constant, our intuitions tell us that a five door car is closer to the stereotypical car than a six door car. Similarity depends not only on the weights of the particular respects against which we are judging similarity, but also their values.

These notions about similarity must go into what $\approx$ does. When a speaker uses the predicates *sorta swim*, what the speaker brings to mind is a predicate that is like swimming in some particular dimension or dimensions: performed in water, movement of arms and legs, and so on. In a particular context where what matters to the speaker is performing an activity in the water, *sorta swim* is only licit if it also uses the same dimension. As shown previously, though, the dimensions that matter are contextually determined; if what matters in the context is the arm and leg motions, *sorta swim* can cover swimmings that are not performed in water (for example, a person acting out swimming in a game of charades). In the formulation of *sorta* in this chapter, the reference to what dimensions matter for similarity is handled by the context parameter on $\approx$.

Finally, a point worth noting is that the alternatives that *sorta* brings to mind for non-gradable predicates do not have to be represented by any particular lexical items. Although we may talk about the action that someone performed using *sorta swim*, it's not required that the action that they performed necessarily be able to be described by another lexical item. The use of *sorta* itself pulls in this direction — a speaker uses *sorta* to explicitly acknowledge that it is hard to find a lexical item in their vocabulary that appropriately describes the situation. This observation is compatible with the idea that notions of similarity make reference to dimensions, due to any set of dimensions not necessarily being covered by a single lexical item.

2.5.4 Lingering issues and speculation

There are a few lingering issues about *sorta* that deserve mention. The first is *sorta*'s status as a polarity item; *sorta* cannot be used in the immediate scope of negation, unless the negation has been reinterpreted as being metalinguistic negation. This is illustrated in (108) and (109), where (109) is licit because the negation is negating the speaker's use of the word *sorta* and not operating as logical negation for the proposition. (The capital letters indicate that the words are stressed.)

(108) a. *John isn't sorta tall.

b. *The young child didn't sorta swim.

(109) a. John isn't SORTA tall — he IS tall.

b. She didn't SORTA swim — she DID swim.

A second issue concerns the ability of *sorta* to shift the meanings of nouns. Although *sorta* can shift the meaning of nouns, this shift is constrained by the determiner. Determiners such as *every* and *the* block the ability of *sorta* to affect the meaning of the noun, while determiners such as *a* do not. Although (110a) has a reading available that is paraphrased by "drew something like a house" (the "noun" reading where *sorta* modifies the noun), comparable readings are not available for (110b) and (110c).

(110) a. I sorta drew a house. ✓verb, ✓noun

b. I sorta drew the house. ✓verb, *noun

c. I sorta drew every house. ✓verb, *noun

Interestingly, McCready (2008) notices a similar pattern with the English particle *man*. When *man* is used sentence initially and prosodically integrated into the sentence, *man* allows for DP-internal intensification of adjectives. Like *sorta*, this intensification is limited. Some determiners, such as those in (111), allow the adjective to be intensified, but not others, such as those in (112).

(111) Man John ate { a / two / a few / several } big piece(s) of cake.

(112) *Man John ate { few/no / most/many / both/two of the / every/the } big piece(s) of cake.

McCready argues that the proper description of this fact is that all the determiners that allow for the adjective to be intensified are monotone increasing on their first argument, while the determiners that do not allow intensification lack this property. More generally, integrated *man* resists other downward-entailing environments such as negation, inviting another comparison with *sorta*.

McCready's explanation for this is as follows. The analysis of *man* itself is that it is used for intensification, shifting the utterance to use a more extreme set of degrees than would otherwise be used, effectively creating a stronger claim. Under negation, this strengthening would result in a *weaker* claim (see **?** for *any*), which runs counter to the use of *man*. More generally then, only upward entailing environments, including upward monotone determiners, will allow modification by *man*. Similar reasoning may be available for *sorta*: *sorta* serves to weaken (rather than strengthen claims). As downward entailing environments are scale-reversing (Fauconnier, 1975), the utterance with *sorta* would now be a stronger (rather than weaker) statement, also running against the function of *sorta*. This analysis would unify both the determiner restrictions with modification by *sorta* and *sorta*'s status as a polarity item.

Sorta contrasts with *very* in allowing subsequent measurement, as shown in (113). Although *very* allows the speaker to more precisely state a degree, *sorta* does not allow a speaker to do this.

(113) How tall is Bill?

a. He's very tall — 6'7" to be precise.

b. #He's sorta tall — 5'11" to be precise.

It seems plausible that this is related to discourses such as in (114), where a shift in the standard of precision has taken place. In this discourse, John is perceived to be needlessly pedantic, even though he's factually correct.

(114) *Situation: Bill arrived at 2:59pm*

a. Mary: Bill arrived at 3pm.

b. John: No, he arrived at 2:59pm.

c. Mary: You're just being annoying.

Klecha (2014) argues for a constraint on discourses where participants must agree on a single, uniform pragmatic context. This is stated in (115). This constraint explains the feeling about (114): Mary and John have different standards of precision in mind, and this has become apparent once the discourse has started.

(115) UNIFORM PRAGMATIC CONTEXT (UPC) (Klecha, 2014)

Speakers must agree upon a single uniform pragmatic context, and the pragmatic context does not change, unless with explicit metalinguistic negotiation.

If a principle such as the UPC is assumed, this could explain the illicitness of . In , the speaker has apparently had two contexts in mind, first committing himself tos a low precision context where it is acceptable to be vague about the precise, and then immediately after trying to shift to a higher precision context where the exactly degree can, in fact, be specified. The UPC presumably rules this out, as the speaker has not committed himself to a single standard. Indeed, Klecha brings up an example where this sort of shift within a single individual is illicit.

(116) *The facts: Julian arrived at 2:59; Gallagher arrived at 2:58.* (=Klecha's (41), chapter 4)

a. Itamar: Gallagher arrived at 3.

b. Helena: Right, Julian also arrived at 3.

c. Itamar: #No, he arrived 2:59.

Finally, one last lingering question is what the relationship between the nominal *sort* (*a sort of car*) and the adverbial *sorta* is. I cannot offer any firm conclusions on this, but we might speculate that the adverbial *sorta* arose through a reanalysis of the nominal *sort* plus the preposition *of*. Under the analysis in this chapter, when *sorta* modifies a VP, it does so by loosening the interpretation of the modified VP to allow for the use of predicates similar to it. One way to think about this, perhaps, is that these are essentially other "kinds" of events denoted by the VP; what *sorta swimming* is doing is letting speaker talk about other kinds of swimming. As *sort* (and *kind*) involve kinds semantically (Wilkinson, 1995), this provides a tentative link between the meaning of *sort* and the adverbial *sorta*, at least in it's use as a modifier of non-gradable predicates. This is a preliminary hypothesis, and further work should be done on elucidating the connection between *sort* and *sorta*.

2.6 Conclusion

The fact that *sorta* is able to appear across categories, appearing with gradable and non-gradable adjectives, verbs, and even nouns, might lead us to believe that all these categories had some common semantics, namely some sort of inherent gradability. Based on the meanings that constructions involving *sorta* are able to take, however, I've argued that this isn't the case. Rather, what ties these categories together is *sorta* itself; *sorta* has a degree semantics that, when coupled with a specialized typeshift PREC, allows it to grade over both gradable and non-gradable predicates. Gradable adjectives receive rather pedestrian degree readings. Non-gradable predicates are coerced into gradable predicates; *sorta* lowers the degree of precision in order to expand the interpretations allowed by the predicate it combines with.

The benefit of this system is that it provides a unified picture of how *sorta* works: across

categories, *sorta* maintains a degree semantics, but the degree used differs depending on the lexical semantics of the predicate modified. Gradable adjectives are inherently gradable, by virtue of lexicalizing a degree argument. However, non-gradable predicates are only externally gradable; they must be coerced into having a scalar semantics. This gives us a clearer picture of what gradability is and where to find it; while inherent gradability might be limited, we should expect to find places where gradability has been coerced. Looking at the semantics of modifiers such as *sorta* may give us clues as to when gradability has been coerced or when it is inherent.

CHAPTER 3

EXTENDING THE SLACK REGULATING ANALYSIS WITH *VERY*

3.1 Non-canonical modification with *very*

Canonically, *very* is a degree word that modifies gradable adjectives, such as in (1). In these cases, *very* combines with the predicate to assert that the degree to which the predicate is holding is quite high on the scale. *Very tall*, for instance, means not just that someone is tall, but that someone's degree of tallness is very high on the height scale.

(1) a. John is very tall.

b. This river is very wide.

In some cases, though, *very* can modify categories that aren't gradable adjectives, such as the nominals in (2). What I will claim is that these uses of *very* have a slack regulating flavor to them. What *very* does in these cases is lower the amount of pragmatic slack afforded to the description, or rather, that *very* requires the expression to be interpreted more precisely.

(2) a. the very center of the Earth

b. the very spot where Lincoln stood

c. the very beginning of the line

d. the very front at the concert

To illustrate that these are truly related to precision, it helps to show scenarios where it's clear that the expression with *very* is interpreted differently than the expression without. (2d) is a clear example of this. Suppose that the diagram in Figure 3.1 represents the setup at a concert, with a stage up front and a series of rows. If I sit in Row 2, I am entitled (in normal circumstances) to say that I sat at the front at the concert. However, if someone asks if I sat at the very front, I'm obliged

to say no. Only the people sitting in Row 1 were sitting at the very front.

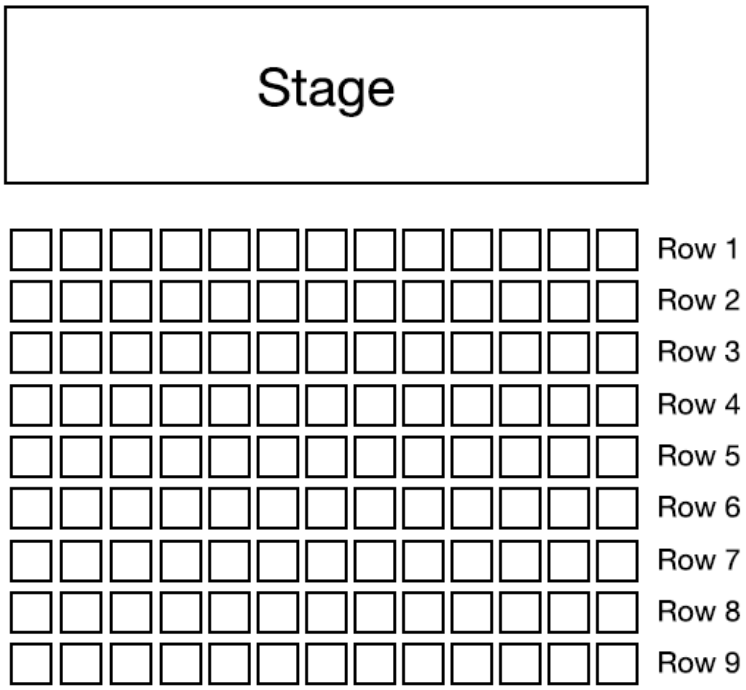


Figure 3.1: Diagram of a concert

This can be shown with *center of the Earth* as well. Geologists know that the Earth has several layers. Thin, rocky crust is the outermost layer, covering a mantle of solid and then plastic, flowing rock. This then covers the core of the Earth. The core of the Earth is known to be composed of nickel and iron, but it wasn't until 1936 that the core was discovered to have a liquid outer layer and a solid inner layer. In other words, although the center of the Earth is made of nickel and iron, it is only the very center of the Earth that is solid. This is illustrated with the diagram in Figure 3.2, where the dark shaded area is the very center of the Earth, even though the lined area and everything inside it is the center of the Earth.

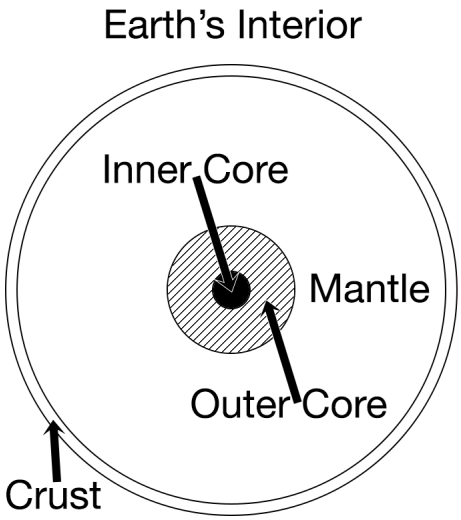


Figure 3.2: Diagram of the interior of the Earth

Very can also be used with the ordinal number *first*, and expressions like it such as *last*, as shown in (3).

(3) a. the very first person to walk on the moon

b. the very last person in line

c. the very next day

Intensification is unacceptable when the indefinite article or a quantifier is used. To generate the intensification meaning, the definite determiner must be present.

(4) a. *every/a very spot where Lincoln stood

b. *every/a very first person in line

However, not all senses of *very* with nominals have the same sense of intensification. This is illustrated with the examples in (5) below. In these examples, rather than grading the noun along some inherent property (like "closeness to the center" with *center of the Earth*), these are graded along some property that is extrinsic to the noun. I'll call this the identification reading.

(5) a. This very person committed the crime.

b. He had been hoping for me to read that very book all along!

c. I spoke to that very clerk yesterday.

Finally, it seems ill-advised to simply lump together all uses of *very* with cases of *very* modifying the DP-internal modifier *same*. Supposing that there is a covert *same* present in the structure when *very* is modifying a nominal element seems to make the wrong predictions. Examining the distribution of cases of *very* and compare to *very same*, we find that they do always not have quite the same syntactic distribution. *Very* can modify *same*, as in (6). If a covert *same* were implicated in (7a), we should expect the sentence to be acceptable, contrary to fact. Rather, the sentence that must be uttered is the one in (7b).

(6) John and Mary bought the (very) same car, ten years apart.

(7) a. *John and Mary bought the very car, ten years apart.

b. John and Mary bought this very car, ten years apart.

To conclude this section, I argue that *very* has a slack regulating use when used with ordinals, superlatives, and nominals. In the next section, I'll build on my analysis of *sorta* from chapter 2, and show how *very* can be used to increase precision.

3.2 Two kinds of approaches to *very*

3.2.0.1 Kleinian approaches

One approach to the semantics of *very* is that of Klein (1980). In the kind of system that Klein is developing, vagueness and gradability aren't represented using typed variables corresponding to degrees (contrasting with later approaches by e.g., Kennedy (1999)). Rather, in this sort of system, gradability is a product of how the extensions of inherently predicates change in context.

The idea in this approach is that vague predicates, such as *tall*, are partial functions. They

are true for some set of individuals, false for another set of individuals, but undefined for other individuals. These individuals where it is undefined whether they are true or false can be said to fall in the extension gap of *tall*. The individuals for which *tall* is true are said to fall in the positive extension of *tall*, while the individuals for which *tall* is false fall in the negative extension.

What drives the context-dependence of adjectives such as *tall* is the ability for the positive and negative extensions, as well as the extension gap, to shift between discourse contexts. As the standard for what counts as *tall* might change in a particular context (e.g., talk of basketball players versus average people, or skyscrapers versus single-family homes), the individuals who fall in the extension gap or the positive and negative extensions will also change.

A degree word like *very* is a way of shifting what should count for the positive and negative extensions of a gradable predicate. *Very* would shift the positive extension 'upward' so that fewer individuals would fall within the positive extension, and more would fall in the negative extension.

Given the analysis of *sorta* in the previous chapter, however, I wish to set aside the idea of using a Kleinian approach for these uses of *very*, and instead use a degree approach. This will bring the analysis of *sorta* and *very* quite close together. Background on *very* in degree-based approaches to gradability is in the next section.

3.2.0.2 *Very* in degree-based approaches

In approaches where gradability is represented by a type for degrees, the task of putting a meaning to *very* changes, compared to the Kleinian approach. In many of these types of approaches, adjectives denote either measure functions (Kennedy, 1999) or relations between degrees and individuals (Heim, 2000). For adjectives not embedded in comparatives or other degree constructions, null morphology is used to transform the adjective into something that can be predicated of individuals (*pos*; Cresswell (1976); von Stechow (1984); Kennedy (1999)), or a typeshifting rule to shift the adjective into a property of individuals (Neeleman et al., 2004).

3.3 The slack regulation mechanism

(This section briefly recaps the slack regulation mechanism from the previous chapter.)

Lasersohn (1999) notes that linguistic expressions often allow for an amount of imprecision or pragmatic slack to be afforded to them. For instance, a sentence such as that in (8a) allows for a few exceptions in a normal discourse (e.g., we're free to overlook a couple nightowls in the town), and similarly for (8b), which allows John to not have arrived at precisely 3pm.

(8) a. The townspeople are asleep.

b. John arrived at 3pm.

However, certain words and phrases reduce our tolerance for loose talk. An example of this is as in (9a), where the use of *all* allows for fewer or even no exceptions to the claim that the townspeople are asleep. And, in (9b), the use of *precisely* makes us be much more exactly about the precise time that John arrived.

(9) a. All the townspeople are asleep.

b. John arrived at precisely 3pm.

What Lasersohn proposed was that expressions had pragmatic halos surrounding them, pragmatically ignorable differences, and that loose talk could be thought of in terms of these halos. Lasersohn provides one implementation of this would work, while Morzycki (2011) provides another. One benefit of the system in Morzycki 2011 is that it offers a clear way of linking together talk of degrees with talk of imprecision, as imprecision in his system is regulated via a degree parameter on the interpretation function $[\![.]\!]$. The pragmatic halos surrounding a linguistic expression are tied to this degree parameter by a relation $\approx_{d,C}$, which is true of two objects just in case they are d-similar to each other.

(10) $[\![dumb]\!]^{d,C} = \{f_{\langle e,t\rangle} : f \approx_{d,C} \textbf{dumb}\}$

(11) a. $[\![dumb]\!]^{1,C} = \{\textbf{dumb}\}$

b. $[\![dumb]\!]^{.9,C} = \{\textbf{dumb}, \textbf{ignorant}, \textbf{dopey}, \textbf{foolish}, \ldots\}$

c. $[\![dumb]\!]^{0,C} = D_{\langle e,t\rangle}$

The next section goes into further detail about how degree words such as *very* can interact with this system and alter the size of the pragmatic halo associated with linguistic expressions.

3.4 Analysis

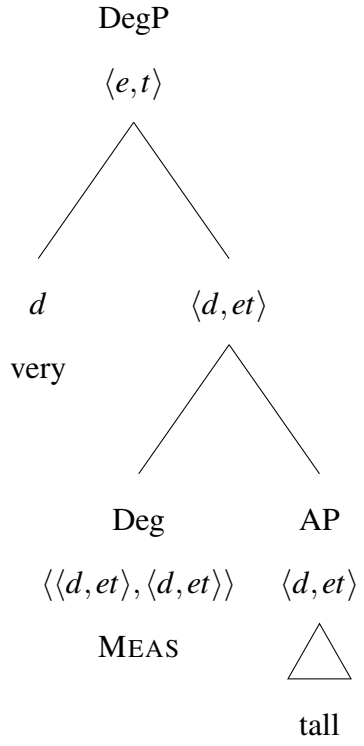
3.4.1 *Very* as a slack regulator

In chapter 2, I analyzed *sorta* as a degree word that quantifies over degrees that are lower than the contextually supplied standard for some gradable predicate. What I will pursue here is analyzing *very* in a similar (but not exactly the same) way—that what *very* does is combine with gradable expressions and supply a degree that is high along the scale. Standardly, one way of writing this would be as in (12), where *very* quantifies over degrees. This denotation would combine with a gradable predicate G and saturate its degree argument.

(12) $[\![very]\!] = \lambda G_{\langle d,et\rangle} \lambda x \exists d\,[\textbf{high}(d) \wedge G(d)(x)]$

I will take a slightly different approach to *very* in this chapter, though, and propose that *very* will directly denote a degree high along the scale. To see how this works in the adjectival domain, let's consider *very tall*. In order to have *very* combine with an adjective like tall, a silent measurement head MEAS will saturate the degree argument of *tall* with the degree provided by *very*. This is similar to MEAS in Svenonius & Kennedy 2006.

(13)



(14) a. $[\![\text{MEAS}]\!] = \lambda G_{\langle d,et\rangle}\lambda d\lambda x.G(d)(x)$

b. $[\![\text{MEAS } \textit{tall}]\!] = \lambda d\lambda x.\textbf{tall}(d)(x)$

c. $[\![\textit{very}]\!] = d_c$, where d_c is a high degree in context c

d. $[\![\textit{very } \text{MEAS } \textit{tall}]\!] = \lambda x.\textbf{tall}(d_c)(x)$

Of course, with non-gradable predicates, there is no degree for *very* to saturate. This is where the PREC typeshift, described in the previous chapter and repeated below, comes into play. To recall, the denotation for PREC is as in (15), where PREC binds the precision parameter on the linguistic expression it is shifting, creating what is essentially a gradable predicate, graded by degrees of precision.

(15) $[\![\text{PREC } \alpha]\!]^d = \lambda d'.[\![\alpha]\!]^{d'}$

When *very* is modifying non-gradable categories, I define it syncategorematically as in (16), where *very* α is *very* and the constituent it has merged with, in this case the constituent built into a gradable predicate using PREC.

(16) Where α is a gradable expression (type $\langle d, \tau \rangle$),

$[\![\textit{very } \alpha]\!] = [\![\alpha]\!](d_c)$, where d_c is a high degree in context c

The next sections show how this works in certain syntactic environments.

3.4.2 Intensification and nominals with inherently scalar meanings

Certain types of nominals provide for natural ways of making them more precise with *very*. Examples of these are *center* and *beginning*, as shown in (17).

(17) the very center of the Earth

(18) the very beginning of the line

What is special about nouns like *center* and *beginning* is that, for any given index, they uniquely denote. There can only be one center of the Earth, one beginning of a line, and so on. In the terminology of Löbner (1985), these nouns provide for functional concepts, and are functions from indices (worlds) to individuals. A denotation for *center of the Earth* would look as in (19).

(19) $[\![\textit{center of the Earth}]\!] = \lambda w \iota x.x$ is the center of the Earth in w

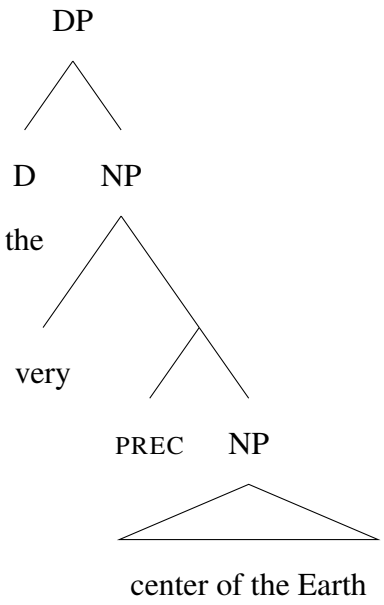
The driving idea in this chapter is that *very* can be used to raise a degree of precision associated with a linguistic form. So, although these types of nouns have types of the form $\langle s, e \rangle$, at the level of their pragmatic halo I will treat them as sets of functions rather than single functions. The degree of precision in this case will be modulating the size of the location returned by the function, such that these functions will have a natural ordering determined by their range.

(20) $$[\![\textit{center of the Earth}]\!]^d = \left\{ f_{\langle s,e \rangle} : f_{\langle s,e \rangle} \approx_d \lambda w \iota x. \begin{array}{c} x \text{ is the single point at} \\ \text{the center of the Earth in } w \end{array} \right\}$$

Like *sorta* did with non-gradable predicates, *very* can get access to the degree of precision parameter on the NP via the typeshift PREC. The tree in (21) illustrates this with *very* and *center of the Earth*,

where the use of PREC opens up the degree of precision argument so that *very* can get access to it.[1]

(21)



Combining PREC with *center of the Earth* will result in the logical form in (22). Since $\lambda d'$ abstracts over the d' parameter on $\approx$, the set of alternatives generated for *center of the Earth* will be a set of functions such that each d-approximates the single point at the center of the Earth.

(22) $[\![\text{PREC } [\textit{center of the Earth}]]\!]^d$

$= \lambda d'.\, [\![\textit{center of the Earth}]\!]^{d'}$

$= \lambda d'.\, \left\{ f_{\langle s,e\rangle} : f_{\langle s,e\rangle} \approx_{d',c} \lambda w \imath x. \begin{array}{c} x \text{ is the single point at} \\ \text{the center of the Earth in } w \end{array} \right\}$

Now being a gradable predicate due to PREC, PREC *center of the Earth* can combine with *very*. The role of *very* is to ensure that the degree of precision set to *center of the Earth* is on the extreme upper end of the scale.

When combined with *very*, PREC *center of the Earth* will be saturated with the contextually supplied high degree denoted by *very*, d_c.

[1] Even though PREC is a typeshift, I've chosen to represent it in the tree here. This is for notational convenience in showing how the semantic derivation proceeds, rather than a commitment to the typeshift being syntactically represented.

(23) $[\![\textit{very}\ [\text{PREC}\ [\textit{center of the Earth}]]]\!]^d$

$$= \left\{ f_{\langle s,e\rangle} : f_{\langle s,e\rangle} \approx_{d_C,c} \lambda w \iota x. \begin{array}{c} x \text{ is the single point at} \\ \text{the center of the Earth in } w \end{array} \right\}$$

This successfully derives how *center of the Earth* can be interpreted more precisely when modified by *very*.

3.4.3 Demonstratives and *very*

Very is also able to (seemingly) combine with nominals that do not have natural ways of making them more precise. Some examples of this are as in (24).

(24) a. This very person committed the crime.

b. He had been hoping for me to read that very book all along!

c. I spoke to that very clerk yesterday.

What seems to be crucial about a number of these examples is that they involve the use of a demonstrative determiner, e.g. *this* and *that*. What makes demonstratives special here in allowing for *very* to be used?

Among the first analyses of the demonstrative determiner in the Montagovian semantics tradition is that of Bennett 1978. Bennett (1978) argues for an analysis where demonstrative determiners should be underlying analyzed as being definite determiners with locative modifiers. To put this another way, the sentence in (25a) is analyzed by Bennett as being like the sentence in (25b). (A similar idea applies in (26).)

(25) a. This house is for rent.

b. The house here is for rent.

(26) a. That guy is tall.

b. The guy there is tall.

Schmitt (1996, 2000) argues that in some cases a noun is not the first argument of a definite

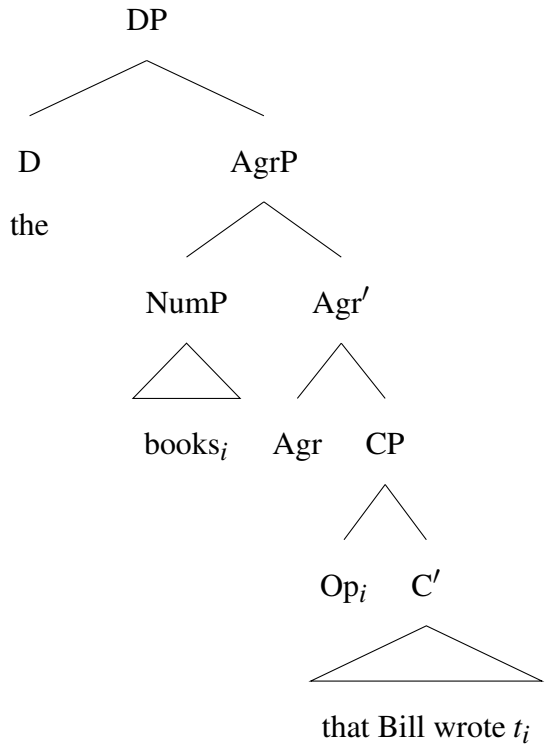
determiner, but that what the determiner is selecting for is actually a relative clause. Cases such as those in (27) and (28) provide support for this view, where modification by a relative clause is needed in the (c) examples in order to make the sentence acceptable.

(27) a. I bought one type of bread.
b. *I bought the type of bread.
c. I bought the type of bread that you like.

(28) a. John painted his house a nice color.
b. *John painted his house the nice color.
c. John painted his house the color his girlfriend liked.

These examples are analyzed as the D taking a CP complement (see also related proposals in Kuroda 1968; Vergnaud 1974; Kayne 1994), as in (29). With the noun (actually a NumP) in SpecAgrP, it is 'free' from the determiner. Schmitt proposes that the determiner enters into a θ-binding relationship with the relative clause (see Higginbotham 1985) and not the NumP. This makes the relative clause the argument to the determiner, and not the noun.

(29)



A related notion can be found in Barker 2004, who analyzes cases like in (30) where the determiner seems to be 'weaker' than normal in not strictly requiring uniqueness (these cases were noticed by Poesio (1994)). What Barker proposes is that the relational noun (*corner*, *side*) composes with the determiner via function composition, before the relational noun's complement composes with the determiner. In this way, the relational noun satisfies the uniqueness presupposition of the definite determiner.

(30) a. I hope the cafe is located on the corner of a busy intersection.

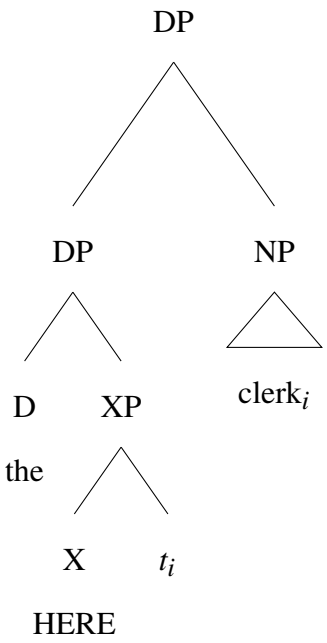
b. In the center of the room is a large stone cube, about 10 feet on a side. Engraved on the side of the cube is some lettering.

Following these proposals, I will assume is that the covert indexical is the first argument of the definite determiner in demonstrative descriptions, and not the noun. On the face of it, this may seem a little odd, but the up-shot to this is that the uniqueness contributed by the definite is uniqueness relative to the situation denoted by the indexical, rather than uniqueness with respect to the nominal

itself. In using demonstrative noun phrases, the nominal itself does not seem to be uniquely denoting in the context. Rather, what is unique is the location referred to.

In cases like this with demonstrative determiners, what *very* is modifying is not the nominal itself, but the locative element instead. If *very* were to be modifying the nominal, the natural interpretation would seem to be one where the nominal is being interpreted more precisely. But, *person* in *this very person* isn't what is being interpreted more precisely. Rather, *very* in that example seems to be narrowing which people can count for the description. Since the covert locative element is what is being interpreted more precisely, *very* is attaching to it and increasing its precision. Syntactically, the picture I will assume at LF for *this very person* is as in (31): the definite determiner takes the locative as its first argument, and the noun phrase as its second argument, with the noun phrase postposed. (*This* will be considered to be the spell-out of *the+HERE*.) Again, to be clear, the syntax in (31) should not be taken to be the surface syntax for the expression, only the syntax for the expression at LF.

(31)



When *the* combines with a common noun phrase under normal circumstances, I consider *the* to have just a single argument. The definite determiner will be modeled as a choice function, a function from a set to a member of that set. When *the* combines with a common noun phrase like *dog*, the

logical form would look as in (33). The choice functional variable f is valued contextually.

(32) $[\![\textit{the}]\!] = \lambda P_{\langle e,t\rangle}.f(P)$

(33) $[\![\textit{the dog}]\!] = [\![\textit{the}]\!]\,([\![\textit{dog}]\!]) = f(\mathbf{dog})$

For the tree in (31), *the* needs to accept two arguments, though: it needs an argument position not only for *HERE*, but also for the postposted NP. In this case, the denotation for *the* would be as in (34). The two arguments to *the* are interpreted intersectively, and are the argument to the choice function f.

(34) $[\![\textit{the}]\!] = \lambda P \lambda Q.f(\lambda x.P(x) \wedge Q(x))$

The way that we could standardly consider the denotation for *HERE* would be tentatively as in (35). It encodes a deictic element *loc*, and is true just in case the individual x is at the location *loc* points to in context c.

(35) $[\![\textit{HERE}]\!] = \lambda x.loc_c(x)$ (tentative)

However, as we are working in a system where the precision alternatives to expressions are important, what we need to consider is what alternatives *HERE* will have. If *very* is increasing the precision for *HERE*, what we want for the alternatives is a set of functions that point to more and more precise locations. *HERE* will structure its alternatives in the following way in (36). These alternatives will be (partially) ordered with respect to how closely the approximate the location of x in c.

(36) $[\![\textit{HERE}]\!]^d = \left\{ f_{\langle e,t\rangle} : f \approx_{d,c} \lambda x.loc_c(x) \right\}$

When *very* is combined with *HERE*, *very* will necessarily require that *HERE* be interpreted to a high degree of precision.

(37) $[\![\textit{very}\ [\text{PREC}\ \textit{HERE}]]\!]$

$= [\![\text{PREC}\ \textit{HERE}]\!]\,(d_c)$

$= \left\{ f_{\langle e,t\rangle} : f \approx_{d_c,c} \lambda x.loc_c(x) \right\}$

3.4.4 Precision and other nominals

Having discussed nominals that have natural ways of being precise, and demonstratives, where the increase in precision is applied to the indexical element rather than the noun itself, we turn to other cases of *very* where *very* seems to be increasing the precision of a nominal element. Example of this is are in (38) and (39), where *spot* falls into this class due to spots (locations) not having a natural ordering to them.

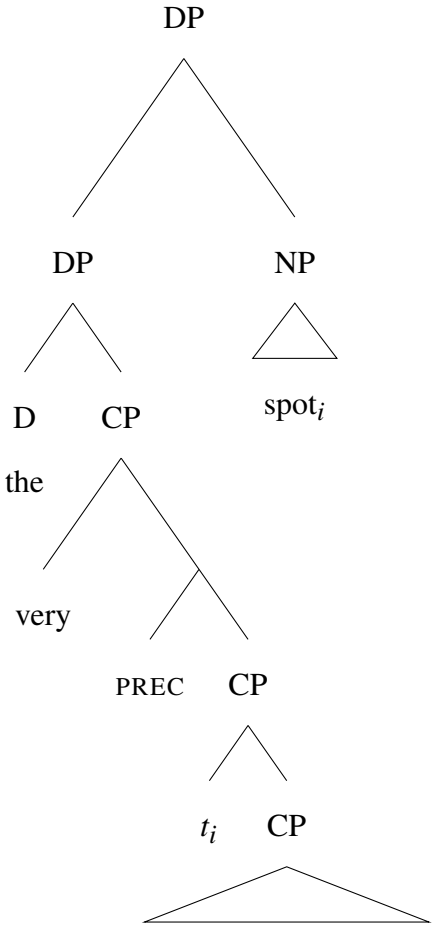
(38) I stood in the very spot where Lincoln stood.

(39) Sea turtles are able to return to the very spot where they were born.

Like *person* in the previous section, though, if we were to increase the precision of *spot*, what we would wind up with is being more precise about what it means to be a spot, which is intuitively incorrect. Rather, what we want to be more precise about in the example in (38) is the exactly location where Lincoln was standing (not just somewhere close by!), and similarly in (39) we want to talk about the exact spot on the beach where the turtles were born.

The syntax for this at LF will be as in (40), where once again the determiner is combining with something that is not the noun; in this case, it combines with the CP *where Lincoln stood*. *Very* modifies this CP, and the degree of precision for the CP is accessible to *very* through the PREC shift.

(40)



Where Lincoln stood can be understood as a constituent that can be made more precise in this context by making functions that are true of locations that are successively closer to the exact spot where Lincoln stood. The precision alternatives for it would be as in (41).

(41) $[\![\textit{where Lincoln stood}]\!]^d = \left\{ f_{\langle e,t \rangle} : f \approx_{d,c} \lambda x.\text{Lincoln stood exactly at } x \right\}$

3.4.5 *Very* and ordinals

Finally, *very* is also able to modify ordinal numbers in some cases. Some examples of *very* modifying ordinal numbers and related categories are in (42). *First* or *last* are the ordinals that are most easily modified by *very*, but in certain circumstances other ordinals such as *second* can be

modified as well.[2]

(42) a. the very first person to walk on the Moon

b. the very last person in line

c. ?the very second thing he did that day

What is being precisified in these examples is not the NP, nor the comparison class provided by the prepositional phrase modifier or relative clause. Rather, it is that *very* is making the interpretation of the ordinal more precise.

Following Bhatt & Pancheva (2012) and Bylinina et al. (2015), I'll decompose the ordinal into a numeral of type *n* and an ordinal forming morpheme *-th*. Bylinina et al. (2015), breaking from other analyses (Bhatt, 2006; Sharvit, 2010), propose a syntax for ordinals without movement of a superlative morpheme. Their assumed syntactic structure for an ordinal is below, where *n* is a natural number and CC is a comparison class-denoting relative clause.

(43) [[[*n -th*] CC] NP]

I won't take up the mantle of integrating my semantics for *very* with their semantics for ordinals, but it is natural to see how *very* can increase the precision of the numeral in the ordinal. Numerals by themselves are often interpreted imprecisely, but can also be forced to be interpreted more precisely. The numeral *one*, for instance, might be interpreted as having the halo in (44), where it denotes a set of natural numbers approximating 1.

(44) $[\![one]\!]^d = \{n : n \in \mathbb{N} \approx_{d,c} 1\}$

One rub in this is that *the first person in line* does not seem to normally be interpreted imprecisely, and neither does the numeral *one*, which by hypothesis *first* can be morphologically decomposed

[2]Examples show that *very second* is possible can be found on Google. Some include *the very second thing he did was succeed in blowing up the earth* (`http://forums.spacebattles.com/threads/if-dragonball-z-did-not-go-as-far-with-the-powerlevels.329869/`) and *the very second thing he did when he assumed Presidency/Premiership/Dictator of Iraq* (`http://www.reddit.com/r/Military/comments/28d6b3/somebody_dropped_the_ball/`).

into (*one-th*).[3] However, I do not think that their preference to be interpreted precisely is support for a view where they absolutely must be interpreted precisely. Rather, in cases like *the very first person in line*, I would like to suggest that there is rather some amount of pragmatic reasoning going on regarding the use of *very*. When a speaker uses *very* to increase the precision of some expression, this also implicates that there was the possibility of interpreting that expression imprecisely before. Even though *the very first person* and *the first person* might be truth conditionally equivalent, the former (and not the latter) also implicates the possibility of having interpreted the latter imprecisely.

3.5 Other formulations of the syntax and semantics

In this chapter, I've assumed one version of a syntax and semantics for expressions using *very*. But, there are alternatives to these assumptions that could also be explored while maintaining the insight that *very* in these cases is slack regulating.

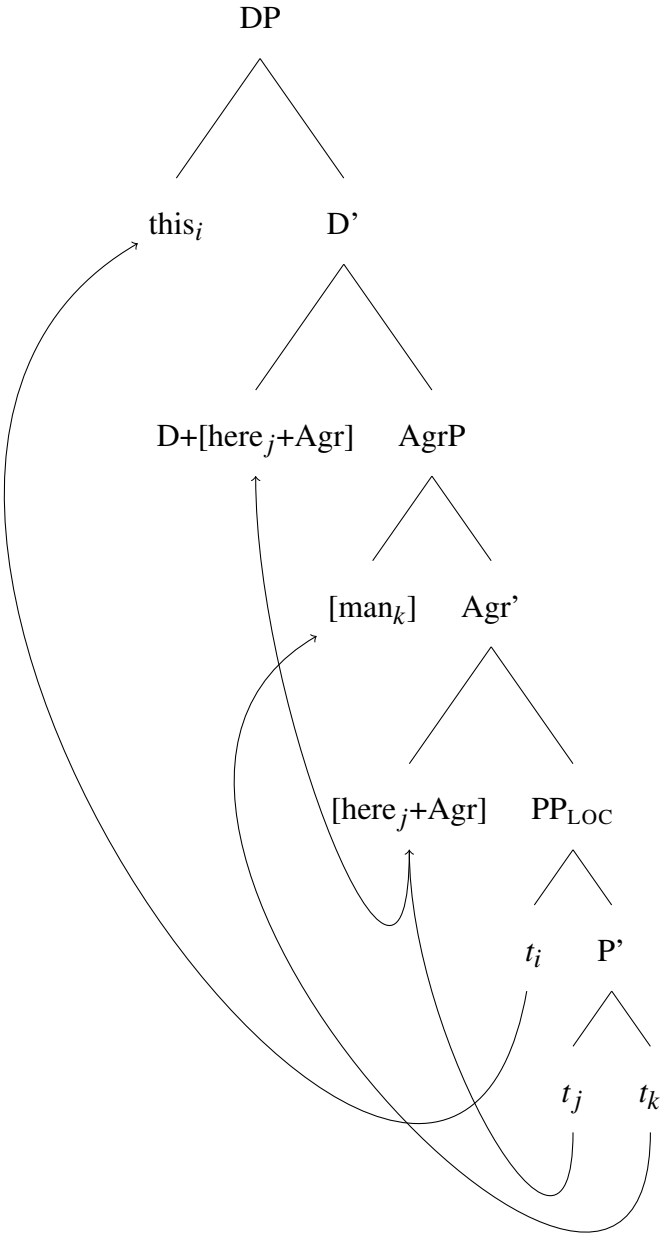
One syntactic possibility that could be pursued is more closely adopting the syntactic proposals for demonstratives in Schmitt 2000. In this structure, the NumP containing the NP is the complement of a covert preposition *here*. *Here* raises to the definite D head, passing through Agr, while the NumP raises to SpecAgrP. This captures the intuition that the locative relation itself (rather than the NP) is the complement to the definite. As the NP isn't the complement of the definite, uniqueness is calculated with respect to the locative relation rather than the NP.

[3] Ai Taniguchi (p.c.) gives a scenario where it is possible to interpret *first* imprecisely.

(i) Yesterday was my first appearance on TV as an actor. Well, kinda first, I was on TV once when I was 2 and I was in the background of some local daycare commercial. That was my very first appearance.

This seems to suggest that expressions like *first* really do simply have a mere preference that they be interpreted precisely, rather than them requiring absolute precision. This is compatible with the story I am telling in this chapter.

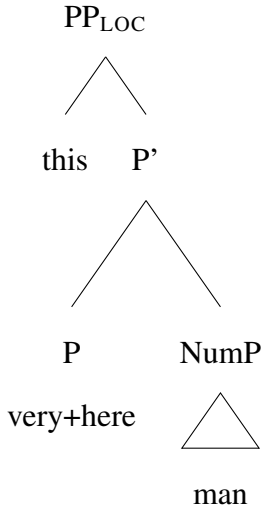
(45)



If this is used as the structure for demonstrative noun phrases, it is still the locative element that must be interpreted more precisely when *very* is used as a slack regulator. The best option for the insertion site of *very* with this structure is to adjoin *very* to the P head, as below. *Very* will then be

in a position to increase the precision of the locative element, while not affecting the precision with which the NumP is interpreted.

(46)



The analysis for cases where *very* appears to modify a nominal with an inherent way of increasing its precision might also be given a different formulation. One way of doing this that would preserve insights from Barker 2004 would be to treat the definiteness in *the center of the Earth* as uniqueness relative to the *center* relation, rather than as uniqueness relative to the entire NP *center of the Earth*.

To recall Barker's analysis, he analyzes cases with weak definites such as those in (47) as cases where the definite determiner imposes uniqueness on the relation (*corner*, *side*). Barker notes that there are many possible relations between possessors and possessed objects (part-whole relations, ownership, physical proximity, and so on), and uniqueness with respect to the relation here can be construed as the speaker marking with the definite that there is a single specific relation he or she has in mind.

(47) a. I hope the cafe is located on the corner of a busy intersection.

b. In the center of the room is a large stone cube, about 10 feet on a side. Engraved on the side of the cube is some lettering.

Returning to *the very center of the Earth*, another way of analyzing this would be to analyze *the* as marking that the speaker has in mind a particular relation, namely *center* (as opposed to, say, the

outside of the Earth). Even in this case, though, what *very* marks is that *center* should be construed more precisely than it would otherwise be construed.

Although there are different ways of analyzing the syntax and semantics of the constructions examined in this chapter, the particular modes of analysis seem to have little bearing on the observation that *very* is able to increase precision. Future work on these should examine further how *very* fits into these structures.

3.6 Conclusion

This chapter examined cases where *very* is used outside of the adjectival domain. In these cases, *very* is used to mark an increase in precision. In other words, the speaker uses *very* to signal that some expression should be interpreted more precisely than would otherwise be the default.

Many analyses of *very* propose that *very* supplies a degree that is extreme on a scale. I maintained this basic line of analysis, but proposed that *very* could supply extreme degrees not just for gradable predicates (such as with *very tall*), but also supply extreme degrees with respect to degrees of precision. I extended the analysis of *sorta* from chapter 2 to the analysis of *very* in this chapter, using the typeshift PREC to transform non-gradable predicates into predicates that could be graded with respect to their degree of precision, with *very* supplying an extreme degree of precision. In this way, the same basic tools from chapter 2 can be used to not only lower precision, as is the case with *sorta*, but also increase precision, as with *very*.

CHAPTER 4

NUMERALS AND *SOME*

4.1 Introduction

Approximation in English can be expressed in various ways. For instance, the adverbials *almost* and *approximately* are some ways of expressing that an expression should be construed approximately. Another way, as discussed in chapter 2, are the adverbials *sorta* and *kinda*. With numerals, prepositions provide another way of expressing approximation, as shown in (1).

(1) a. around ten people

b. between ten and twenty people

c. close to ten people

In this chapter, I look at an approximative construction involving numerals in English. Part of what makes this construction theoretically interesting is its reliance on the epistemic indefinite *some*. This sets it apart syntactically from other instances of approximation, in that the element that is expressing approximation is not an adverbial or a preposition.

Examples of this approximation construction (which I will call NumSome) are shown in (2). In these examples, *some* appears post-numerally. The interpretation in these examples is one where NumSome expresses a range of possible numbers, but where the speaker doesn't know the precise number that satisfies the claim expressed by the sentence.

(2) a. Twenty-some people arrived.

b. His forty-some years of experience were devoted to human resources.

c. I could have it entirely full of small icons and fit a hundred some icons on one screen.

Other modified numerals such as *at least 10* and *not more than 20* have bounded interpretations,

either lower-bounded (like with *at least*) or upper-bounded (like with *not more than*). What sets NumSome apart from other modified numerals is that it has both a lower-bounded and upper-bounded interpretation; for instance, the numerals in the examples in (2) above would be associated with the intervals as in (3).[1] The salient fact about this interval is that its lower bound starts at the modified numeral, and has an upper-bound as determined by the syntax of the numerical expression (which will be explained shortly).

(3) a. $[20, 30)$

b. $[40, 50)$

c. $[100, 200)$

This makes NumSome different that some other types of approximators, such as *around*. Although they seem similar in that they involve a number that is closed to what is being modified, *around* implicates a halo of numbers centered around the modified number (for instance, something like $[18 - 22]$ in (4)), while NumSome's interval starts at the number denoted by the numeral itself.

(4) I saw around twenty dogs during my walk today.

(= I saw between 18 and 22 days during my walk today.)

It's somewhat tricky to show that there is a particular number that sets the lower bound for NumSome, due to the epistemic requirement that the speaker do not know the precise number that satisfies the claim. But, if we pair an utterance with a fact about the world that the speaker learns later on, we can show that the utterance was either true or false. When we pair (5) with (6a), where the fact of the matter is that there was a number of dogs incompatible with *twenty-some*, namely 19 dogs, the sentence is judged false. However, if (5) is paired with (6b), where the fact is that there were actually 23 dogs the speaker saw, then the utterance is judged to be true. This shows that the utterance really is lower-bounded at the numeral that is being modified.

[1] These use the interval notation, where the first number is the lower bound, and the second number the upper bound. A [and] specify that the bound includes the number, while (and) specify that the bound excludes the number.

(5) I saw twenty-some dogs during my walk today.

(6) a. *Speaker later learns he saw only 19 dogs:*
(5) is judged to have been false.

b. *Speaker later learns he saw 23 dogs:*
(5) is judged to have been true.

Finally, returning to the question of how and where *some* is licensed, what we observe is that NumSome is only possible if the modified numeral is one that can combine additively with another numeral. When the numeral cannot combine additively with another numeral, as is the case with *one* through *nineteen*, NumSome is impossible.

(7) a. *ten-some

b. *five-some

(8) a. *ten-five (expected: 15)

b. *five-one (expected: 6)

Moreover, *some* does not have to occur after the entire phrase corresponding to the numeral. If a smaller constituent can combine additively with another numeral, *some* can appear in that position, as in (9).

(9) More than half of the expenditure of eighty-some thousand dollars is for soft costs.

4.2 NumSome as an epistemic indefinite

The driving idea behind the analysis later in this chapter is that NumSome is a type of epistemic indefinite. Epistemic indefinites are indefinites that convey ignorance on the part of the speaker as to the particular referent of some nominal expression. They are quite robustly attested cross-linguistically with examples in English (*some*), German (*irgendein*), Spanish (*algún*), Romanian

(*vreun*), Hungarian (*vagy*), and Japanese (the WH-*ka* series of pronouns).[2]

Rather than express ignorance as to the identify of an individual, however, what NumSome does is express ignorance as which number satisfies a description. In other words, what NumSome is is a type of indefinite numeral. To motivate that NumSome really is an epistemic indefinite, we have to first compare its properties with some other known epistemic indefinites. The epistemic indefinites that I compare NumSome to *some* in its canonical determiner use, as well as Spanish *algún*.

Some implicates that the speaker doesn't know the precise identity of the person being referred to. The examples in (10) and (11) below (attributable to Strawson (1974)) demonstrate this contrast with *a* and *some*. While person B cannot ask the question about who was shot in the exchange in (10), due to person A having used *some*, this is allowed in (11), due to the indefinite *a* being compatible with knowledge on the part of the speaker.

(10) A: Some cabinet minister has been shot!
B: #Who?

(11) A: A cabinet minister has been shot!
B: Who?

Comparing the behavior of NumSome to *some*, we can see that NumSome requires the same expression of ignorance. This is illustrated in (12), where someone cannot follow-up an utterance that uses NumSome by asking for an exact quantity.

(12) A: Twenty-some students are taking my class this semester
B: # How many?

Alonso-Ovalle & Menéndez-Benito (2010) note that the ignorance inference with *algún* can be reinforced with other linguistic material. This sets it apart from presuppositional content and asserted content, which cannot be reinforced, due to being entailed. This suggests that the inference is not entailed, but is rather an implicature, as implicatures more generally are able to be reinforced.

[2]See Haspelmath 1997 and Alonso-Ovalle & Menéndez-Benito 2013 for overviews.

(13) María sale con algún estudiante del departamento de lingüística, pero no
María goes out with ALGUN student of the department of linguistics, but not
sé con quién
I know with whom.
'María is dating some student in the linguistics department, but I don't know who.'

I note that the ignorance component of *some* behaves in a similar way, in that it can also be reinforced. Likewise, the expression of ignorance in NumSome can be reinforced, drawing another parallel between known epistemic indefinites like *some* and *algún* and NumSome.

(14) Maria is dating some student in the linguistics department, but I don't know who.

(15) Mary cooked twenty-some pies, but I don't know exactly how many.[3]

To conclude this section, NumSome appears to pattern with other epistemic indefinites in that it also enforces an epistemic requirement on the speaker that the speaker not be able to make a precise claim as to the identity of the referent. With respect to numbers, this amounts to the speaker not being able to commit as to which particular number satisfies a description. This is similar to the behavior of *some* and *algún*. Moreover, like *algún* and *some*, NumSome's ignorance inference can be reinforced, making it pattern with implicatures rather than presuppositions and assertions. In the next sections, I'll develop an analysis of NumSome that builds off of Alonso-Ovalle & Menéndez-Benito (2010)'s analysis of *algún*, and show how the ignorance inference can be generated as an implicature.

[3]This example gets worse or even unacceptable if *exactly* is left off: **Mary cooked twenty-some pies, but I don't know how many.* My suspicion is that this is due to a clash between *twenty-some* committing the speaker to some measure of pies (just not an exact measure), and *I don't know how many* committing the speaker to not having knowledge of any particular number. Since the speaker does assert he knows some number, just not a precise number, he can't go on to further assert he doesn't know the number at all.

4.3 Representing cardinal numbers

4.3.1 Hurford (1975)'s analysis of numerals

One of the earliest discussion of numerals in the formal syntax literature is that of Hurford (1975). Hurford provides for a theory of numerals using a set of phrase structure rules. Using these rules, he can generate the set of numerals in English and other languages.

The phrase structure rules are provided in (16). NUMBER is the category of additive numerals, and / stands for the unit (the digit 1). PHRASE is the category of multiplicative numerals. Lexical items of category M are the multiplicative bases; in English, these include *hundred*, *thousand*, and *-ty* (as in *twenty*).

(16) a. $\text{NUMBER} \rightarrow \left\{ \begin{array}{l} \text{/ (NUMBER)} \\ \text{PHRASE (NUMBER)} \end{array} \right\}$

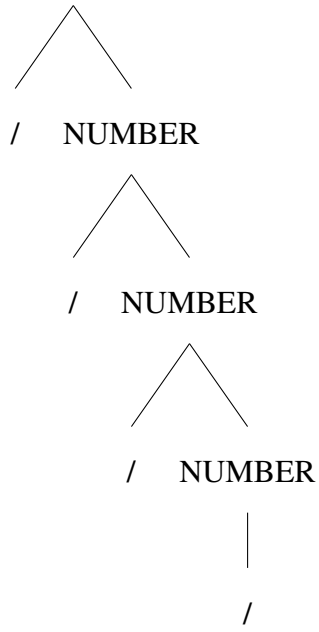
b. $\text{PHRASE} \rightarrow \text{NUMBER M}$

c. $\text{M} \rightarrow \text{NUMBER M}$

These phrase structure rules have an interpretation to go along with them as well. The NUMBER rule interprets its subconstituents as composing via addition, while the PHRASE rule interprets its subconstituents as composing via multiplication.

The simple numerals *one* through *eleven* can be constructed in this system by recursive application of the NUMERAL phrase structure rule. A numeral such as *four* would be constructed as in (17). Each / gets interpreted as the unit (e.g., 1), and so addition of each unit will get the number 4 as the meaning of the numeral *four*.

(17) NUMBER



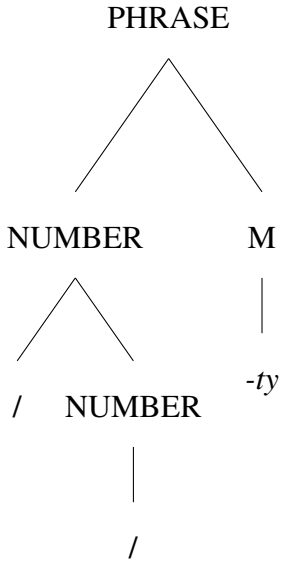
A numeral like *eleven* would be represented in the same way, as a recursive sequence of /s. For simplicity, we can just write *eleven* instead, with the understanding that it's a placeholder for that sequence.

(18) NUMBER

eleven

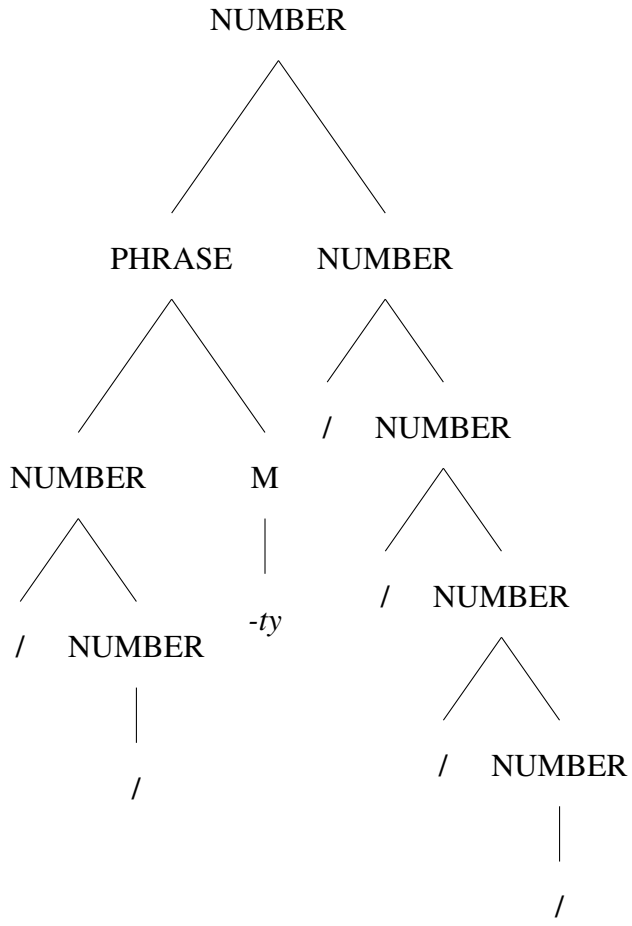
Numerals such as *twenty* are represented in a different way. The observation these types of numerals is that they are mathematically and morphologically complex; *twenty* is morphologically *two* and *-ty*, and mathematically 2*10. The structure for *twenty* would be represented as in (19), where the M *-ty* is taken to also be recursively constructed from /.

(19)



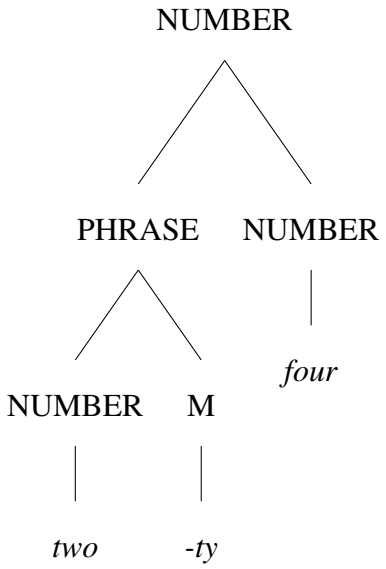
More complex numbers, such as *twenty-four* can be built up with these phrase structure rules as well. *Twenty-four* would be represented as below.

(20)



If we collapse the number sequences together as we did with *eleven*, this number can be represented equivalently as in (21).

(21)



How do these numerals get the appropriate interpretation? Hurford supposes that the phrase structure rules also have interpretative rules associated with them. Phrase structure rules that generate a NUMBER are interpreted using an additive rule; the values of the subconstituents of a NUMBER are composed via addition. For a PHRASE, the subconstituents are instead composed via a multiplicative rule. The value for *twenty-four*, 24, would be calculated as $(1+1+1+1)+((1+1)*10)=24$, where the sequences of addition of 1 represent the values for *four* and *two*.

Hurford's proposal does overgenerate with respect to the numerals of English (and other languages), however. For instance, there is no mechanism in place to stop a numeral such as *thirty-eleven* (with the interpretation of 41) from arising. This objection about overgeneration is discussed later in this chapter, in section 4.6.2.

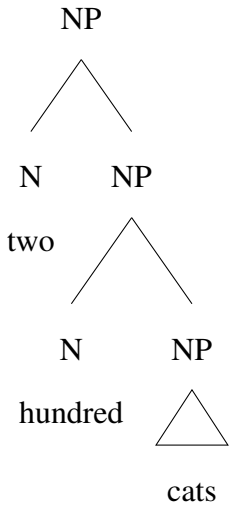
In my analysis, I'll build on aspects of Hurford's system, namely that simplex and complex numerals are constituents. Before starting my analysis, though, it's important to also talk about a more recent analysis of numerals.

4.3.2 Ionin & Matushansky (2006)'s analysis of numerals

Ionin & Matushansky (2006) propose an alternative analysis of numerals, where complex numerals do not necessarily form constituents. First, they argue that multiplicative numerals, such as *two*

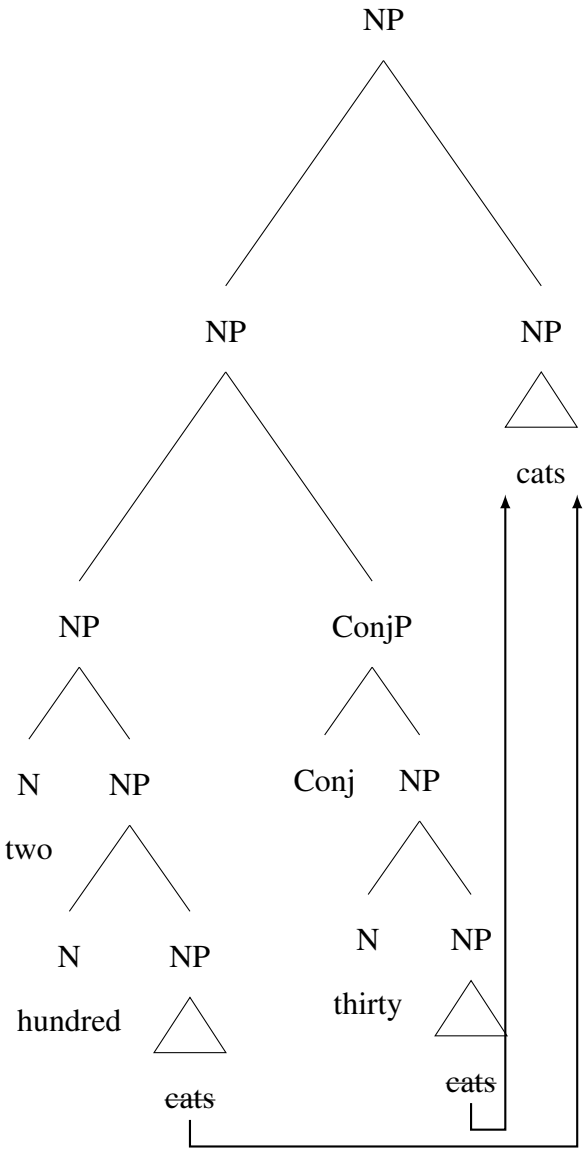
hundred, are formed via complementation. *Two hundred cats* would be represented as in (22), where *two hundred* does not form a constituent, but rather where *hundred* takes the NP *cats* as a complement.

(22)



Contrasting with this is the structure for additive numerals like *two hundred and thirty cats*, as in (23). These numerals do form constituents via coordination. Each of the coordinated numerals has the head noun as a complement. The head noun is then either ellided from the first conjunct, or both instances undergo right-node raising (which I've represented in the structure in (23)).

(23)



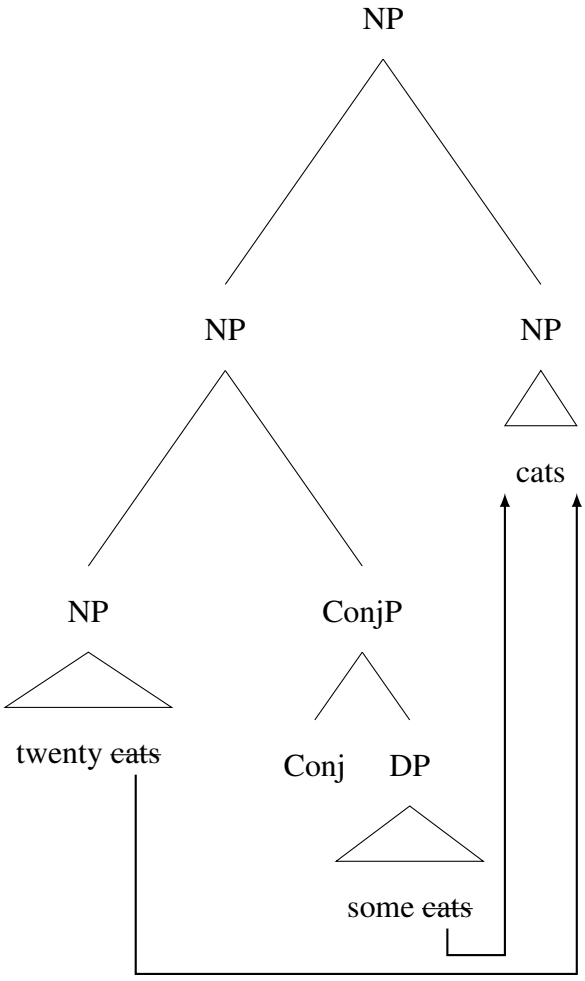
Some evidence for a structure such as this comes from Biblical Hebrew and Luvale (Zweig, 2005), where the head noun can be present in both conjuncts of an additive numeral. (An example from Luvale is presented below.)

(24) mikoko makumi atanu na-mikoko vatanu na-umwe
sheep ten five and-sheep five and-one
'fifty-six sheep' (Zweig, 2005)

If this sort of right-node raising view of numerals is correct, what it seems to suggest for the default analysis of NumSome is a structure like in (25), where *some* has merged with the head noun, and

the noun has then raised out of the structure.

(25)



This analysis would seem to have something to offer in the case of *twenty-some cats*; since *some cats* has as its most natural reading an interpretation where the number of cats is low, and *twenty-some cats* means twenty cats plus some low number of cats, this structure would predict the right interpretation for that phrase. But, I argue that this structure makes the wrong prediction for larger numerals such as *two hundred-some cats*. Earlier in this chapter, I argue that a number like *two hundred-some* has an interpretation that is compatible with any number between 201 and 299. Since *some cats* seems to most naturally mean some small number of cats, it's not entirely clear how *two hundred-some* could mean numbers greater than, say, 210.

Additionally, the use of *some* that can be used to count a number of individuals is the reduced version, *sm*, as in (26). However, the *some* that is used in NumSome does not seem to be the reduced

some.

(26) a. There's sm/??some cats in the yard.

b. I have sm/??some marbles.

Of course, these aren't insurmountable problems. For the former issue, we could appeal to context-dependence in *some* to say that *some* requires a low number, relative to another number. Since numbers like 10, 20, and even 50 are low with respect to 200, this could be the start of an analysis for how *two hundred-some* could mean 250. For the latter issue, a clear theory of the relationship between *sm* and *some*, and how one might be derivable from the other, might also inform us that the *some* in NumSome is really *sm*.

Without some more concrete ideas regarding how the analysis in (25) would work, however, I'll set aside Ionin & Matushansky's analysis and build an analysis that is closer to Hurford's in flavor. Aspects of Ionin & Matushansky's analysis will be adopted, though, particularly the use of coordination in additive numerals.

4.4 My proposal

4.4.1 Simple cardinal numbers

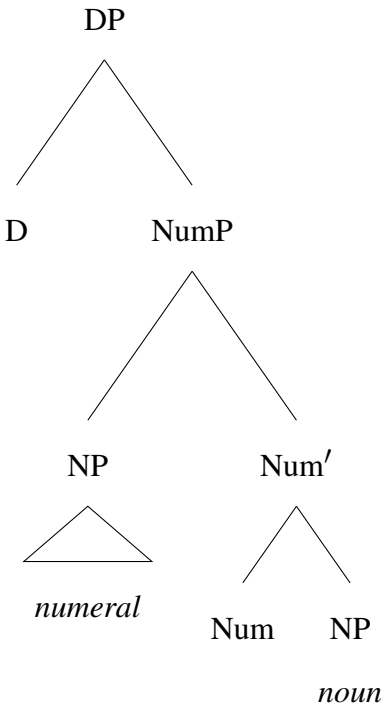
In representing the syntax and semantics of cardinal numbers, I adapt proposals from both Solt (2015), Ionin & Matushansky (2006) and Hurford (1975). First, I assume a degree semantics for cardinal numbers, following a similar move by Solt for quantity words such as *few* and *many*. I treat simple numerals as denoting properties of degrees, type $\langle d,t\rangle$. This makes a cardinal such as *twenty* have the denotation as in (27).

(27) $[\![twenty]\!] = \lambda d\,[d = 20]$

Syntactically, numerals are inserted in the specifier of a NumP projection, as in (28), breaking with the syntax proposed by Ionin & Matushansky (2006). This projection is above the NP projection,

but still contained in DP. The role of Num head is to measure the cardinality of an individual. How this is done is shown in (29).

(28)



(29) $[\![\text{Num}]\!] = \lambda x \lambda d\,[|x| = d]$

Solt notes that there is a compositional issue in defining the Num head in this way. Under standard assumptions, the NP that Num combines with is simply a property of individuals, $\langle e,t \rangle$. However, Num is of the wrong type to combine with the NP, being type $\langle e,dt \rangle$. To solve this, Solt uses the Degree Argument Introduction rule in (30) to put the NP and Num together. The resulting function is now type $\langle d,et \rangle$.

(30) Degree Argument Introduction (DAI): (Solt, 2015)
If α is a branching node, $\{\beta,\gamma\}$ are the set of α's daughters, and $[\![\beta]\!] = \lambda x_e.P(x)$, $[\![\gamma]\!] = \lambda x_e \lambda d_d.Q(d)(x)$, then $[\![\alpha]\!] = \lambda d_d \lambda x_e.P(x) \wedge Q(d)(x)$.

At this point, the denotation of a numeral and Num are incompatible (i.e., Num′ needs a degree and not a property of degrees, as denoted by the numeral). These can be made to be compatible if the

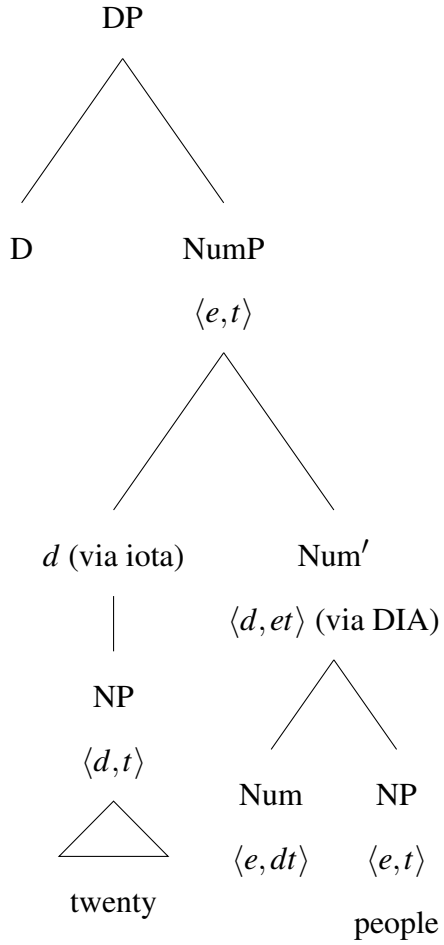
grammar allows for flexibility in converting between types. This possibility is motivated by Partee (1987), who argues for the existence of a family of typeshifts for manipulating nominal denotations. Suppose that we generalize these typeshifts to degrees as well as individuals. This comes at a bit of a price, but the cost seems to be to still be quite low. A generalized iota typeshift, defined as in (31), can then be used to take the property of degrees that the numeral denotes to a single degree, as there is a single unique degree that'll satisfy that property. This mirrors the behavior of the nominal iota typeshift, which takes a property of individuals $\langle e,t\rangle$ to a single individual, so long as there is a unique individual in the domain of discourse that satisfies that property.

(31) Iota Typeshift (from $\langle d,t\rangle$ to d, where d is the type of degrees):
Shift P to $\iota d\,[P(d)]$

Ordinary numerals like *five*, *twenty* and even complex numerals like *three hundred and five* can have the iota typeshift applied to them. The function denoted by *twenty*, for instance, is satisfied only by the degree 20, and similar reasoning applies for other ordinary numerals. Putting this together, a partial derivation for *twenty people* would look as in (32).[4]

[4]The iota typeshift is represented in the tree as a non-branching node. This is only meant to reflect the change in type involved, and isn't a commitment to an additional node in the syntax.

(32)



The derivation for *twenty people* would then proceed as follows in (33).

(33) a. $[\![\textit{Num people}]\!] = \lambda d \lambda x\,[|x| = d \wedge \textbf{people}(x)]$ (via DIA)

b. $[\![\textit{twenty}]\!] = \lambda d\,[d = 20]$

c. $[\![\textit{twenty}]\!] = \iota d\,[d = 20]$ (via iota)

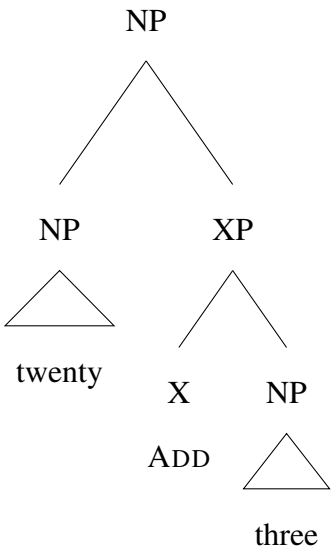
d. $[\![\textit{twenty Num people}]\!] = \lambda x \left[\begin{array}{c} |x| = \iota d\,[d = 20] \wedge \\ \textbf{people}(x) \end{array} \right]$

4.4.2 Complex cardinal numbers

Cardinal numbers can also be complex, such as with *twenty-two* or *eighty-nine*. Examples such as these are semantically additive; *twenty-two* intuitively is formed by the addition of 20 and 2,

and *eighty-nine* is intuitively formed by adding 80 and 9. Following Ionin & Matushansky (2006), I assume that additive cardinal numbers are built up syntactically by coordinating constituents containing cardinal numbers. Ionin & Matushansky suggest that coordination naturally gives the correct semantics for additive numerals. (34) demonstrates how an additive numeral such as *twenty-three* would be constructed in my adaption of their proposal.

(34) Structure of an additive numeral:



A key difference between the formulation in this paper and that of Ionin & Matushansky is the use of a morpheme ADD in the head of the XP, which transparently does the work of additively composing the two numerals. ADD is defined as in (35). D and D' are properties of degrees, corresponding to the denotations of the numeral conjuncts (such as *twenty* and *three* in (34)). ADD asserts that there are two degrees d' and d'', such that d' holds of D and d'' holds of D', and when these are summed, their sum is the degree for the numeral.

(35) $[\![\text{ADD}]\!] = \lambda D \lambda D' \lambda d \exists d', d'' \left[d = d' + d'' \wedge D(d') \wedge D'(d'') \right]$

Twenty-three would have the logical form in (36). Essentially, *twenty-three* is split into its component parts, a degree equal to 3 and a degree equal to 20, and the predicate is satisfied by degrees that are equal to the sum of 3 and 20.

(36) $[\![\textit{twenty ADD three}]\!] = \lambda d \exists d', d'' \left[d = d' + d'' \wedge [\![\textit{three}]\!](d') \wedge [\![\textit{twenty}]\!](d'') \right]$

This numeral would then be inserted into SpecNumP, just like simplex numerals.

4.5 Analysis

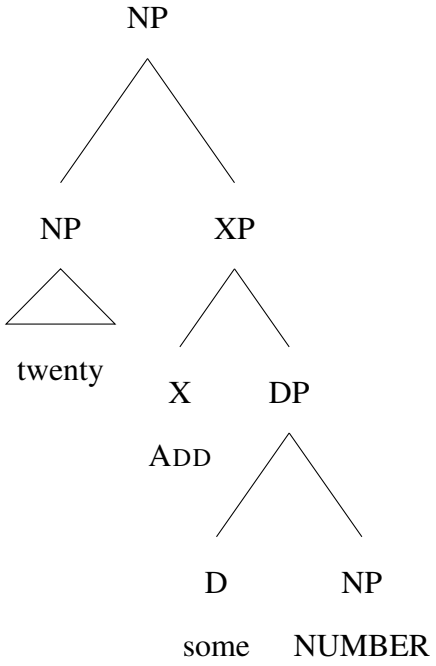
4.5.1 Syntax and semantics of NumSome

As demonstrated previously, NumSome is only possible with additive numeral constructions. I analyze the *some* component of the construction as being like a numeral, albeit an indefinite numeral. In keeping with the pragmatic parallels between NumSome and the more canonical determiner *some*, I analyze *some* here as a determiner as well, taking an NP complement.

I assume that the NP complement to *some* is a silent noun NUMBER. A covert nominal of this sort has been proposed to be at work in other phenomenon using numerals (Kayne, 2005; Zweig, 2005). The meaning for NUMBER will be intentionally quite weak, being simply the domain of degrees, D_d.[5]

[5] It seems quite difficult for NumSome to denote a fractional number, such as *twenty-some* denoting 25.5. If *some NUMBER* is just simply denoting the domain of degrees, it's somewhat unclear why this should be, given that some authors (Fox & Hackl (2007), for example) assume that the domain of degrees is a subset of the real numbers $\mathbb{R}$, and not of the integers. There's two options that come to mind here. One possibility would be to have NUMBER denote in the integers $\mathbb{Z}$ or in the natural numbers $\mathbb{N}$. A second possibility would be to have additional entailments stemming from a more general semantics of numerals that numerals necessarily count atomic individuals. An atomicity constraint of this type would then force *some NUMBER* to always denote an integer. I have very little else to say about these possibilities here, though, and leave the question for further research.

(37)



Based on the similarities with *algún*, I propose treating *some* in a similar way, adopting the formalization for *algún* from Alonso-Ovalle & Menéndez-Benito (2010).

(38) $[\![algún]\!] = \lambda f_{\langle et,et\rangle}\lambda P\lambda Q : \textbf{anti-singleton}(f).\exists x[f(P)(x) \wedge Q(x)]$ (Alonso-Ovalle & Menéndez-Benito, 2010)

However, simply adopting the semantics for *algún* will not quite work for NumSome. In order to combine additively, *some NUMBER* needs to be a property of degrees (and not a generalized quantifier). The revised denotation in (39) for the *some* in NumSome (which I will refer to as $some_{deg}$) reflects these changes, with the existential force stripped out of *some*. Crucially, however, the anti-singleton presupposition remains, as this drives the pragmatic effects of NumSome.

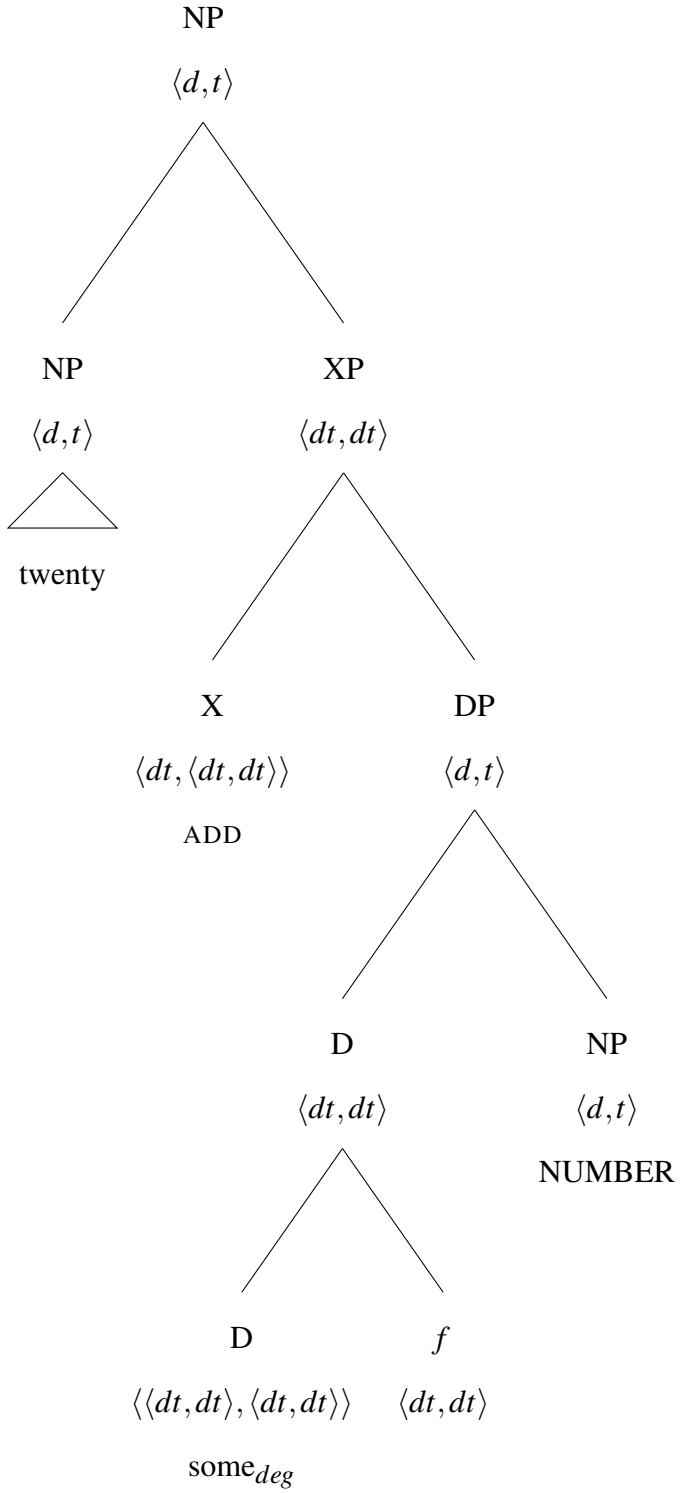
(39) $[\![some_{deg}]\!] = \lambda f_{\langle dt,dt\rangle}\lambda D\lambda d : \textbf{anti-singleton}(f)\,[f(D)(d)]$

When $some_{deg}$ combines with NUMBER, the denotation would look as in (40), where D_d is the domain of degrees.

(40) $[\![some_{deg}\ NUMBER]\!] = \lambda d : \textbf{anti-singleton}(f)\,[f(D_d)(d)]$

Twenty-some, annotated with types, would look as below in (41). Note that the subset selection function (f) has been represented syntactically. The logical form, after some reduction, would look as in (42). Essentially, *twenty-some* expresses twenty plus some indefinite number.

(41)



(42) $[\![\textit{twenty-some}]\!] = [\![\textit{twenty}\ [\textsc{add}\ [\textit{some}_{deg}\ \textit{NUMBER}]]]\!]$

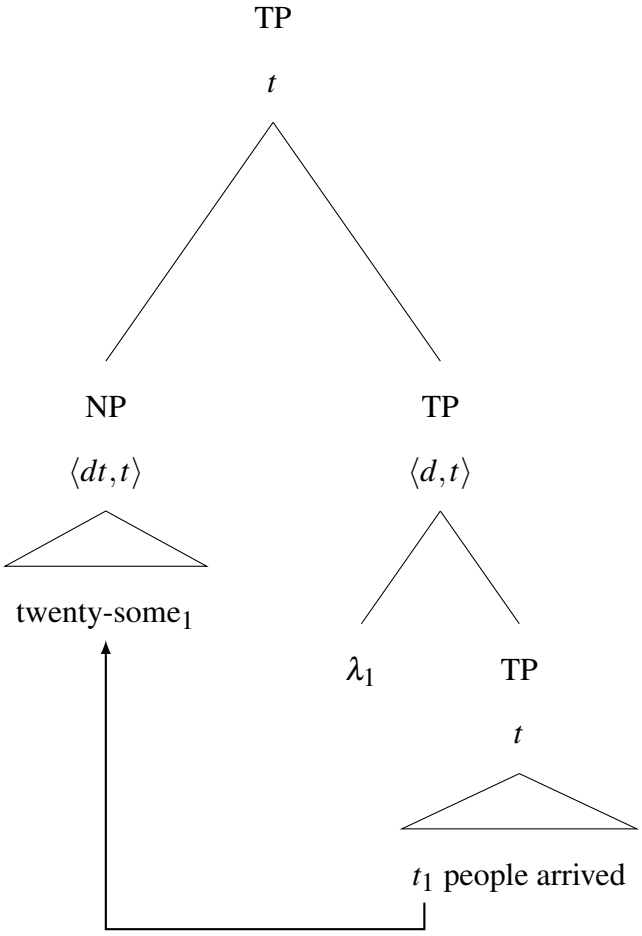
$= \lambda d \exists d', d'' \left[d = d' + d'' \wedge [\![\textit{twenty}]\!](d') \wedge [\![\textit{some}_{deg}\ \textit{NUMBER}]\!](d'') \right]$

Our indefinite numeral (*twenty-some* in the example above) is still type $\langle d,t\rangle$, like other numerals. But, there is still a type clash between the type required of Num$'$ (which is type $\langle d,et\rangle$) and our numerals. This time the iota typeshift cannot a solution to this problem; iota requires a unique degree, but there is no such degree that can satisfy our numeral. The new strategy is to raise rather than lower the type, using a typeshift from properties to generalized quantifiers (see also Partee (1987)). Here, this typeshift is from degree properties to generalized quantifiers over degrees, as in (43), further generalizing the typeshifting system proposed by Partee to degrees.

(43) Generalized Quantifier Typeshift (from $\langle d,t\rangle$ to $\langle dt,t\rangle$, where d is the type of degrees):
Shift P to $\lambda Q\exists d\,[P(d)\wedge Q(d)]$

By raising the numeral to the type of a generalized quantifier (shifting from $\langle d,t\rangle$ to $\langle dt,t\rangle$) and Quantifier Raising the numeral, we can circumvent the typeclash. The trace left behind by the movement will be interpreted as type d, precisely what is required of Num$'$.

(44)



The derivation for *twenty-some people arrived* proceeds as follows in (45). First, the indefinite numeral *twenty-some* is constructed, as in (41), and then merged in SpecNumP. Next, the indefinite numeral *twenty-some* is shifted via the Generalized Quantifier typeshift in (43). It undergoes QR and adjoins to TP, leaving behind a trace of type d that's bound further up tree. This trace is of the appropriate type to combine with Num′.[6]

(45) a. $[\![\text{SHIFT}]\!]([\![\textit{twenty-some}]\!])$

$= \lambda P \exists d\,[[\![\textit{twenty-some}]\!](d) \wedge P(d)]$

$$= \lambda P \exists d, d', d'' \left[\begin{array}{c} d = d' + d'' \wedge [\![\textit{twenty}]\!](d'') \\ \wedge [\![\textit{some NUMBER}]\!](d') \wedge P(d) \end{array} \right]$$

b. $[\![t_1]\!] = d_1$

[6]The $\exists$ in the representation represents default existential closure over the individual argument Heim (1982).

c. $[\![\textit{Num people}]\!] = \lambda d \lambda x\,[|x| = d \wedge \textbf{people}(x)]$

d. $[\![t_1\ \textit{Num people arrived}]\!] = \lambda x \begin{bmatrix} |x| = d_1 \wedge \\ \textbf{people}(x) \wedge \\ \textbf{arrived}(x) \end{bmatrix}$

e. $[\![\lambda_1\ \exists\ t_1\ \textit{Num people arrived}]\!] = \lambda d_1 \exists x \begin{bmatrix} |x| = d_1 \wedge \\ \textbf{people}(x) \wedge \\ \textbf{arrived}(x) \end{bmatrix}$

f. $[\![\textit{twenty-some people arrived}]\!]$

$$= \exists d, d', d'' \begin{bmatrix} d = d' + d'' \wedge [\![\textit{twenty}]\!]\,(d'') \wedge \\ f(D)(d') \wedge \exists x \begin{bmatrix} |x| = d \wedge \\ \textbf{people}(x) \wedge \\ \textbf{arrived}(x) \end{bmatrix} \end{bmatrix}$$

4.5.2 Pragmatics of NumSome

How does the anti-singleton subset selection function create the ignorance inference with NumSome? The analysis of this parallels that of Alonso-Ovalle & Menéndez-Benito's analysis of *algún*, in that the anti-singleton constraint forces the hearer to consider why the speaker uses NumSome and not some particular number. In doing this, the hearer considers alternatives which are represented with singleton domains. As these are stronger claims, and the speaker did not utter any of them, the hearer can draw the inference that the speaker could not (or would not) commit to any of them.

First, Alonso-Ovalle & Menéndez-Benito assume, following Kratzer & Shimoyama (2002), that sentences are implicitly modalized with an assertion operator. They define the assertion operator as in (46) below, and use $\Box$ as a shorthand for this operator.

(46) $[\![\text{ASSERT}]\!]^c = \lambda p \lambda w \forall w' \in \text{Epistemic}_{\text{speaker of } c}\left[p(w')\right]$

To see how the ignorance inference in a sentences with NumSome is computed, consider the utterance in (47), which has the assertion in (a). This assertion merely says that some number

of people greater than 20 arrived, and that the speaker believes it. The role of the anti-singleton constraint, in (b) is to ensure that a suitable subset of the domain of degrees D is chosen using the subset selection function f, but that this subset is not a singleton. In the context of NumSome, what this does is ensure that d' (the unknown number that is added to 20) will not be able to be narrowed down to a single number.

(47) Twenty-some people arrived.

a. Assertion: $\Box \left[\exists d, d' \left[\begin{array}{c} d = d' + 20 \wedge f(D)(d') \\ \wedge \exists x \left[\begin{array}{c} |x| = d \wedge \\ \textbf{people}(x) \wedge \\ \textbf{arrived}(x) \end{array} \right] \end{array} \right] \right]$

b. Anti-singleton constraint: $|f(D)| > 1$

For concreteness, let's suppose that $f(D) = \{1, 2, 3\}$. d' could then take as its value any of those. The alternatives for the utterance in (47) would be as in (48). In other words, the alternatives include the propositions in (a), (b), (c): *twenty-one people arrived*, *twenty-two people arrived*, and *twenty-three people arrived*.

(48) Alternatives:

a. $\Box \left[\exists d, d' \left[d = d' + 20 \wedge d' \in \{1\} \wedge d\text{-people arrived} \right] \right]$

b. $\Box \left[\exists d, d' \left[d = d' + 20 \wedge d' \in \{2\} \wedge d\text{-people arrived} \right] \right]$

c. $\Box \left[\exists d, d' \left[d = d' + 20 \wedge d' \in \{3\} \wedge d\text{-people arrived} \right] \right]$

None of the alternatives in (48) were uttered by the speaker, however—the speaker uttered the much weaker (47). From this, the hearer draws the inference that, since none of the stronger alternatives in (48) were uttered, the speaker couldn't commit to any of them, generating the implicatures represented in (49). Negating the propositions in (49) in this way has the outcome that the speaker was not able to commit to that particular proposition.

(49) Implicatures:

a. $\neg\Box\left[\exists d, d'\left[d = d' + 20 \wedge d' \in \{1\} \wedge d\text{-people arrived}\right]\right]$

b. $\neg\Box\left[\exists d, d'\left[d = d' + 20 \wedge d' \in \{2\} \wedge d\text{-people arrived}\right]\right]$

c. $\neg\Box\left[\exists d, d'\left[d = d' + 20 \wedge d' \in \{3\} \wedge d\text{-people arrived}\right]\right]$

Finally, to compute the actual meaning of an utterance including the implicatures, we find the strengthened meaning. The strengthened meaning of an utterance is the assertion of the utterance, conjoined with each of the implicatures (if there are any). Hearing the strengthened meaning, the hearer reasons that the speaker is ignorant about the particular number of people that arrived at the party because the speaker chose to utter a form that committed herself to no particular number of people.

4.6 Constraints on numerals

The analysis presented in the previous section has a crucial flaw with it: it overgenerates the possible interpretations of NumSome. To see why this, consider the meaning of *some NUMBER*, the indefinite numeral that gets merged with the additive head. Its denotation is repeated in (50) below.

(50) $\left[\!\left[some_{deg}\ NUMBER \right]\!\right] = \lambda d : \textbf{anti-singleton}(f)\,[f(D_d)(d)]$

What *some NUMBER* denotes is simply anything in the domain of degrees. This is because *NUMBER* itself is defined quite weakly, also just denoting D_d.

In the next sections, I propose two ways of slipping constraints into the numeral system. The first way I'll discuss is to encode presuppositions into the ADD head about the types of numerals it can combine with. The second way will be to constrain which alternatives are generated by basing their generation on properties of the numeral system.

4.6.1 ADD and its presuppositions

One way of constraining the interpretations for NumSome (and for the numeral system more general) is to encode the generalizations about which numerals are able to combine into the functional heads that do the work of building up numerals. For instance, quite generally in English, numerals that denote a quantity larger than 10 do not additively combine with another numeral with a multiplicative base denoting 10. This generalization (and other generalizations of this form) could be encoded via presuppositions in the ADD head.

To restate the generalization more generally, ADD seems to be able to additively compose two numerals just in case the second numeral denotes a number that is not larger than the number denoted by the multiplicative base of the first numeral. This gets us is an explanation for why *twenty* can only combine with *one* through *nine*: *one* through *nine* denote numbers smaller than what the multiplicative base of *twenty* (*-ty*) denotes, e.g. 10. This also explains why *hundred* can combine additively with *ninety-nine*, *thousand* combines with *nine hundred ninety-nine*, and so on.

Although this is quite easy to state descriptively, making this part of the meaning of ADD is somewhat complicated. There are several complicating factors. First, ADD needs access to the multiplicative base of the higher numeral. In the case of *twenty-two*, for instance, ADD needs to be able to see the *-ty* morpheme that is part of *twenty*. If ADD can't see the multiplicative base, it will have no way of checking that the other numeral in the additive construction denotes a number that is smaller than additive base.

The other complicating factor is that the sense of wrongness with numerals like **twenty-eleven* isn't that of falsity. For instance, we could represent *twenty-eleven* as in (51) below, where $[\![\textit{-ty}]\!] = 10$.[7] But, if **twenty-eleven* is represented in this way, what we expect is for it to be false of any number, since $11 \not< 10$. The sense, however, isn't that we're saying something false or contradictory, but that we're simply not playing by the rules of the numerical system.

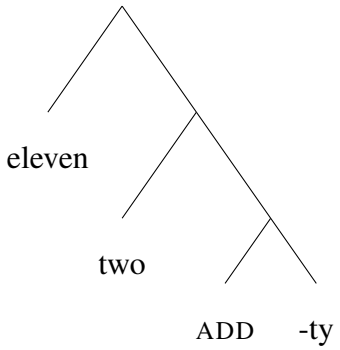
(51) $\lambda d \exists d' \exists d'' [d = [\![\textit{twenty}]\!](d') + [\![\textit{eleven}]\!](d'') \wedge d'' < [\![\textit{-ty}]\!]]$

[7] And we can set aside the question of how $[\![\textit{twenty}]\!] = \lambda d[d = 20]$.

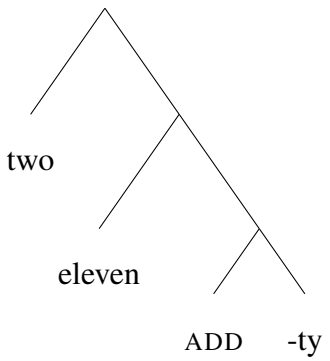
One way to encode this sense of wrongness would be to encode it as a presupposition. Where **twenty-eleven* would go wrong is that *eleven* doesn't meet the presupposition that the numeral that combines with *twenty* denote a number between 1 and 9.

In trying to write this presupposition, a third complicating issue appears. To illustrate this, consider what must be happening in checking whether **twenty-eleven* is built up correctly. ADD has examine *eleven* as it saturates the appropriate argument of ADD, and determine that it meets the presupposition imposed by *-ty*. In order to do this, ADD must have information about the multiplicative base before getting information about the additive numeral. In other words, *-ty* must be available to ADD before *eleven*, in order to ensure that the denotation of *eleven* is smaller than the denotation of *-ty*. What would this syntax look like? Not only would *-ty* have to be independently accessible to ADD from *twenty*, but *-ty* would need to be an argument to ADD before *eleven*. Two options for what this would look like are illustrated schematically in (52).

(52) a.



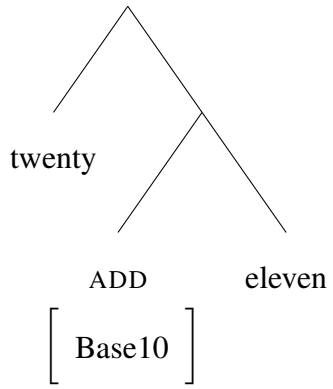
b.



Twenty is an extreme case, since we would be forced into a position where the morphosyntax of the word does not seem to be tracking the semantic composition.

Another way of adding the presupposition to ADD that perhaps doesn't do quite so much damage to the syntax would be to use a feature checking mechanism to put a feature representing the multiplicative base on ADD. This feature can be interpreted as a simple property.

(53)



In this analysis, *-ty* would be providing the [Base10] feature to ADD, as denoted in (54).

(54) $[\![[Base10]]\!] = \lambda y.y < 10$

We could assume that features are composed with the heads they live on through a variable identification rule, as in (55). This rule merely makes the semantic content of the feature a presupposition of the first argument of the head that feature combines with. (I've underlined the presupposition in order to make it easier to distinguish from the assertion.)

(55) If [F] is a feature of type $\langle e,t\rangle$ and X is a head of type $\langle e,\gamma\rangle$, where γ is an arbitrary type, then $[\![[F]\,X]\!] = \lambda x : \underline{[\![[F]]\!](x)}\,[[\![X]]\!](x)]$

Again, this system has a benefit over the other analysis in that it preserves a particular syntax for additive numerals. But, there's a drawback to this analysis as well, in that we need to assume there are features with semantic content that are associated with only particular lexical items—that there is a feature associated only to numerals using the morpheme *-ty*, for instance.

This section has provided two possible analyses for how to put the restrictions regarding additive numerals into the semantics of the ADD head. It seems quite possible to do so, but there are some unwelcome aspects of these analyses at all. For the first analysis, we must make some unorthodox

assumptions regarding the compositionality of the additive numeral, in order to have *-ty* restrict the numeral in the right way. For the second, we must posit a new feature that we have little morphological evidence for, and also claim that this feature is tied to particular lexical items. Neither approach seems particularly appealing currently, but investigating the space of possibilities is something that should be left for more detailed research.

4.6.2 Hurford's Packing Strategy, applied to NumSome

Another strategy to constrain NumSome would be to invoke principles regarding the relationship between the form of a numeral and the number that that numeral can denote. An example of this is the Packing Strategy in Hurford (1975). Hurford concedes that the phrase structure rules he proposes have a problem: they over-generate with respect to the actual, well-formed numerals in English (and other languages), predicting numerical combinations that are simply not seen in the language. In order to fix this, additional constraints are necessary. Hurford proposes the constraint in (56), the Packing Strategy, which creates a well-formedness condition on numeral structures.[8]

(56) Packing Strategy (Hurford, 1975)

A structure A generated by the phrase structures rules is ill-formed if

a. it is of category X, has value x, and has as immediate constituents a NUMBER and some other structure with value y, where

b. the phrase structure rules generate a well-formed structure B of category Z with value z, where Z is on the right-hand side of a phrase structure rule expanding X and is not a NUMBER, and $y < z \leq x$.

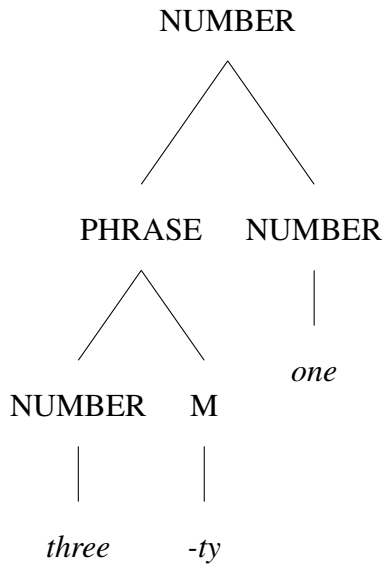
Informally, what the Packing Strategy does is to ensure that the non-NUMBER constituents—that is, the constituents that are not to be interpreted additively—make the largest possible contribution to the meaning of the numeral. The Packing Strategy inspects structures generated by the phrase

[8]The name refers to how the constraint 'packs' as much of the (semantic form of the) numeral into non-NUMBER constituents.

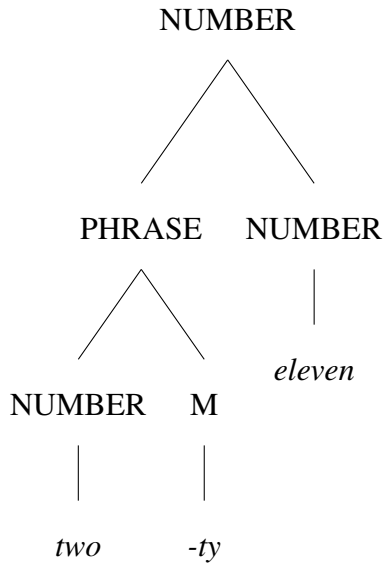
structure rules, and only allows structures where the meaning of non-additive constituents is maximized.

In the case of *thirty-one* and **twenty-eleven*, which both denote 31, the Packing Strategy makes it so that the numeral *thirty* is preferred over *twenty*. To see how this works, first assume that these numbers have the structures in (57) and (58).

(57) *thirty-one*



(58) *twenty-eleven*



In ruling out **twenty-eleven*, the numeral's value is computed, 31, and other structures with the same value will be what **twenty-eleven* is compared against. In this example, *thirty-one* is the competitor. The numeral is inspected, and it is found that *thirty* is a better choice than *twenty*, since *thirty* has the greatest numerical value that is still lower than the value for the entire numeral structure. This forces *thirty-one* to be the appropriate form for the semantic value 31, rather than **twenty-eleven*, since the Packing Strategy requires the constituent that is not a NUMBER constituent to have the highest value possible.

If we suppose that *some NUMBER* would be generated as a NUMBER constituent in Hurford's system, then the Packing Strategy could be used to constrain the values that *some NUMBER* can take. To illustrate how this would work, let's consider *twenty-some* (underlyingly *twenty-some NUMBER*), and why it cannot denote the number 31. In my analysis in the previous sections, *some NUMBER* simply denotes a degree in D_d, meaning that *some NUMBER* could in principle denote any degree. Let's suppose that *some NUMBER* denotes 11. Then, when composed additively with *twenty*, *twenty-some* could denote 31.

The Packing Strategy forces the speaker to consider other alternative ways of expressing the same number using different numerical forms. If 31 is the number being intended with *twenty-some*$_{11}$, one competitor to *twenty-some*$_{11}$ will be *thirty-some*$_1$ (I've subscripted the number that *some NUMBER* would denote on *some*). To express 31, *thirty-some*$_1$ is more optimal than *twenty-some*$_{11}$, due to the contribution of the non-additive constituent being maximized while the contribution of the NUMBER constituent is minimized. In other words, because the Packing Strategy prefers non-additive constituents to be as large as possible, the use of *thirty* is preferable to the use of *twenty* since more of 31 is "packed" in *thirty* compared to *twenty*.

To generalize a bit, when *some NUMBER* combines with *twenty*, *thirty*, and other numerals with a multiplicative base of 10 (e.g., *twenty* = 2*10), *some NUMBER* cannot take the value of anything other than 1 through 9, since larger values would be subject to the Packing Strategy and would have to be represented by the other constituent in the numeral. This provides an explanation for why *twenty-some* can only mean 21 through 29; if *some NUMBER* takes the value of a number that is

greater than 10, then that number could be better expressed in the non-additive constituent, and an alternative form would need to surface instead.

4.7 Conclusion

This chapter investigated the use of *some* in forming approximate meanings with numerals. In my analysis, I propose that what *some* does in these kinds of syntactic configurations is merge with a null noun *NUMBER* that denotes in D_d. What the NumSome means, then, is some number with a lower bound at the numeral that was modified. This is constrained on the upper-bound by independent constraints on numerals, which could be cashed out either syntactically (through a feature-checking mechanism) or semantically (by assuming a semantic constraint of the form of Hurford (1975)'s Packing Strategy).

CHAPTER 5

SOME-EXCLAMATIVES

5.1 Introduction

5.1.1 Basic data

The first observation of *some*-exclamatives that I am aware of in the literature is work by Israel (1999, 2011). According to Israel, the meaning of these exclamatives is that the subject is an extreme exemplar of the *some* noun phrase.

(1) Boy, was she (ever) some dancer! (Israel, 1999)
"She was a dancer and she was an exceptional dancer."

(2) That was some wine she brought to the party!
"She brought wine to the party and it was very good wine."

(3) Some friend she turned out to be!
"She was a friend and she was a particularly poor friend."

(4) It's going to be some party! (Israel, 2011)
"We're having a party and it's going to be a great party."

Israel notes that the exclamative meaning is likely to be related to the hedging (epistemic indefinite) use of *some*, but doesn't provide a complete analysis of how this would work. I will argue that the exclamative use arises from an interaction of two components. Like Israel, I suppose that the epistemic indefinite use of *some* plays a role by creating a set of alternatives. However, this is not quite enough, since *some* generally doesn't give rise to exclamatives. This is where the observation that *some*-exclamatives carry a particular intonational contour on the *some* indefinite comes in.

When this intonational contour is removed, the exclamative meaning is unavailable, and the ordinary indefinite meaning arises.

(5) a. That was *some wine* she brought to the party!

b. #That was some wine she brought to the party.

(6) a. It's going to be *some party*!

b. #It's going to be some party.

This is the second major component of *some*-exclamatives, the intonational contour. I argue that the intonation itself plays a role in creating the exclamative. This role is to structure the set of alternatives denoted by the sentential core of the exclamative, and assert an attitude towards one of the alternatives.

Finally, the examples all previously used show that *some*-exclamatives are most easily used when the phrase headed by *some* is in predicative position, such as after the copula. This would seem to suggest that, in terms of the logical type of *some NP*, it should be thought of as a simple property of individuals, type $\langle e,t \rangle$.

5.1.2 Are they really exclamatives?

In the literature on exclamatives in English, the vast majority of attention has been focused on the properties of *wh*-exclamatives, like those in (7), as well as nominal exclamatives like the one in (8). As these form the canonical cases of exclamative sentences, we might ask whether *some*-exclamatives should also be considered to be exclamatives. Israel argues that they should be, and I follow him in also arguing that *some*-exclamatives are exclamatives based on the properties that prototypical exclamatives have according to Michaelis & Lambrecht (1996).

(7) a. What a large watermelon!

b. How beautiful the birds sing!

(8) The peppers he eats!

Zanuttini & Portner (2003) argue that exclamatives are characterized by two syntactic properties, given in (9).

(9) Syntactic properties of exclamatives (Zanuttini & Portner, 2003)

a. Exclamatives contain a WH operator-variable structure.

b. Exclamatives contain an abstract morpheme FACT in the CP domain.

By a WH operator-variable structure, what Zanuttini & Portner mean is that exclamatives are underlying questions, having a WH-operator that binds a variable in the proposition expressed by the sentence. This is motivated by the fact that WH-exclamatives seem to wear their questionhood on the their sleeve in that they clearly have a WH-word in their structure.

Next, exclamatives are analyzed as making use of a domain widening operation, conceptually similar to the domain widening used by Kadmon & Landman (1993) in their analysis of *any*. Exclamative sentences have at their core a set of alternative propositions, which is widened to include propositions that would not otherwise be under consideration.

(10) Exclamatives widen the domain of quantification for the WH operator, which gives rise to the set of alternative propositions denoted by the sentence.

Zanuttini & Portner have theoretical reasons for making the (a) part of their proposal; they argue that exclamatives denote sets of alternative propositions, as a result of the operator-variable structure. As I will argue for later, exclamatives denote sets of alternatives, but that the means by which these alternatives are generated in *some*-exclamatives is quite different than with other types of exclamative constructions. Therefore, I won't follow Zanuttini & Portner's syntactic characterization of exclamatives, but note that my proposal fits in quite well with their semantic characterization of exclamatives (to be discussed shortly).

Israel (1999) notes that *some*-exclamatives have two of the properties in Michaelis & Lambrecht's list of properties of exclamatives: *some*-exclamatives involve an attitude that's indexed to the speaker, and *some*-exclamatives involve a notion of scalar extent. Michaelis & Lambrecht's list

of typical properties exhibited by exclamatives is in (11).

(11) Semantico-pragmatic properties of the abstract exclamative construction (Michaelis & Lambrecht, 1996)

a. presupposed open proposition

b. scalar extent

c. assertion of affective stance: expectation contravention

d. identifiability of described referent

e. deixis

Some-exclamatives also exhibit the (a) property in the list as well. What Michaelis & Lambrecht mean by presupposed open proposition is that exclamatives are factive. *Some*-exclamatives are also factive, as can be shown by using the 'Hey, wait a minute!' test for presuppositions (Shanon, 1976; von Fintel, 2004).

(12) A: Man, John is some lawyer. He always loses his cases.

B: Hey, wait a minute! I didn't know John was a lawyer.

Given the similarities between *some*-exclamatives and other exclamatives in terms of their meanings, I will continue to refer to *some*-exclamatives as exclamatives.

5.2 Theories of exclamatives

5.2.1 Question theories of exclamatives

One influential type of theory of exclamatives treats exclamatives as being semantically related to questions. Specifically, the propositional content of an exclamative is equivalent to that of a question, but the difference between a question and an exclamative lies in their sentential force. These kinds of theories adopt a semantics for questions in the style of Hamblin (1973), Karttunen (1977), and Groenendijk & Stokhof (1984).

Under normal assumptions, declarative sentences denote propositions, functions from worlds to truth values, type $\langle s,t\rangle$. However, if this is so, what do sentences that aren't declarative denote? Hamblin proposes that questions are sets of propositions, type $\langle st,t\rangle$ (this view is further developed by Karttunen and Groenendijk & Stokhof). The question *Who is coming?* might be represented as in (13).

(13) $[\![\textit{Who is coming?}]\!] = \lambda p \exists x \left[p(w) \wedge p = \lambda w' \left[\textbf{come}(w')(x)\right]\right]$

Gutiérrez-Rexach (1996) adopts this view of questions and proposes that both questions and exclamatives have, at their core, essentially the same denotations. What sets exclamatives apart from questions is the use of an illocutionary operator *EXC* which operates on a variable indexed to the speaker, the world, and a set of propositions. Gutiérrez-Rexach's definition for this is as in (14), where *EMOT* is a set of emotive properties that speakers can have towards propositions, such as surprise and amazement.

(14) Let a be the speaker, w a world (typically the actual world), p a proposition, and $P \in \textit{EMOT}$ (the set of emotive properties). Then,
$\textit{EXC} \stackrel{\text{def}}{=} \lambda a \lambda w \lambda p_{\langle s,t\rangle} \exists P_{\langle s,\langle st,et\rangle\rangle} [P(w)(p)(a)]$

A somewhat different theory of exclamatives is that of Zanuttini & Portner (2003). In their analysis, Zanuttini & Portner follow Gutiérrez-Rexach in analyzing the core of a wh-exclamative sentence as being a question. Where Zanuttini & Portner's analysis differs is in the source of the exclamative reading itself. They argue that exclamatives have at their core a notion of domain widening.

The concept of domain widening here is related to the analysis of *any* in Kadmon & Landman (1993), where *any* is a simple indefinite determiner, but shifts the domain of quantification to a stronger domain when embedded under negation. In Zanuttini & Portner, domain widening applies at the level of propositions. Domain widening applies to the set of propositions denoted by the sentential core of the exclamative, and widens this set to include propositions not previously under consideration. Their definition of widening is provided in (15).

(15) Widening (Zanuttini & Portner, 2003)

For any clause S containing R_{widening}, widen the initial domain of quantification for R_{widening}, *D1*, to a new domain, *D2*, such that

i. $[\![S]\!]^{w,D2} - [\![S]\!]^{w,D1} \neq 0$ and

ii. $\forall x \forall y[(x \in D1 \,\&\, y \in (D2 - D1)) \rightarrow x < y]$

To illustrate how this works, let's consider the exclamative in (16). Zanuttini & Portner follow Karttunen (1977) in treating questions as denoting sets of true answers, so the set of alternatives is as in (17).

(16) What peppers he eats!

(17) $[\![\textit{What peppers he eats!}]\!] = \{p : p \text{ is true in } w \text{ and } \exists a \text{ such that } p = [\text{'he eats } a\text{'}]\}$

$= \{\text{'he eats poblanos'}, \text{'he eats serranos'}, \text{'he eats jalapeños'}\}$

To build the exclamative interpretation, the domain of this set of alternatives is expanded to include propositions that weren't under consideration before. In the set in (18), which has undergone widening, the proposition *he eats habaneros* is now included. In essence, what the widening operation does is build the interpretation that this person eats a variety of peppers, and he even eats these extremely spicy peppers, habaneros. If there are any other peppers he eats, they're not worth our consideration, since they've fallen outside of the widened domain.

(18) $\{\text{'he eats poblanos'}, \text{'he eats serranos'}, \text{'he eats jalapeños'}, \text{'he eats habaneros'}\}$

To summarize, several lines of research have proposed that exclamatives and questions are underlying similar, in that both have as their core denotations a set of propositions.

5.2.2 Degree theories of exclamatives

In contrast with question theories of exclamatives, which treat exclamatives as being underlyingly questions, degree theories of exclamatives treat exclamative constructions as being on par with

other degree constructions, such as measure phrase modification or comparatives. In other words, rather than accounting for the semantics of exclamatives by saying that they are sets of propositions, the semantics of exclamatives is accounted for by assuming that exclamatives make use of sets of degrees.

Some accounts in this type of theory are those of Castroviejo Miró (2006) and Rett (2008, 2011). Castroviejo Miró argues for a degree analysis of *wh*-exclamatives in Catalan based on the observation that *tan* in examples like (19) and (20) occurs in both exclamative environments and in canonical degree constructions. What makes exclamatives different from other sentence types is how they update the common ground. Assertions update the common ground to exclude worlds incompatible with the assertion, while exclamatives in this analysis background the information contributed by the degree construction, and implicate a speaker-oriented attitude towards a degree.

(19) En Ferran ha preparat un pastís tan bo que ha guanyat el concurs
the F. AUX.he prepared a cake so good that AUX.he won the contest
'Ferran made such a nice cake that he won the contest.'

(20) Quin pastís tan bo que ha preparat en Ferran!
what cake so good that AUX.he prepared the F.
'What a nice cake Ferran made!'

Rett (2011) also argues that exclamatives are degree constructions. She observes that exclamatives often make use of overt gradable expressions, such as in (21). When no gradable predicate is overt, however, a covert gradable predicate M-OP is used, where M-OP measures over a contextually salient dimension (in the cases in (22) below, the dimensions corresponding to *delicious* and *exotic* might be licit in context).

(21) a. What delicious desserts John baked!

b. The exotic places John visited!

(22) a. What M-OP desserts John baked!

b. The M-OP places John visited!

The core of the exclamative, for Rett, is a set of degrees (rather than a set of propositions). A process of default existential closure over degrees converts this into a proposition. A covert illocutionary operator E-FORCE expresses surprise at that degree. This is schematized in (23), where d' is the degree existentially quantified over and s_C is the speaker in context C.

(23) How tall John is!

a. $\lambda d.\textbf{tall}(\textbf{john}, d)$

b. $\textbf{tall}(\textbf{john}, d')$

c. E-FORCE(p) counts as an expression that $\exists d'$ such that s_C had not expected that $D(d')$.

5.3 *Some*-exclamatives make reference to kinds

I argue that, at their core, *some*-exclamatives are ultimately kind-related. That is to say, *some*-exclamatives make assertions involving kinds, as opposed to (say) degrees. There are two important pieces of evidence that kinds are involved in *some* exclamatives. First, NPs that do not have clear, well-established kinds are odd in *some* exclamatives. Going back to Carlson (1977), it's been argued that reference to kinds depends on the accessibility of an established kind. Since green bottles (in (24a)) are not an established kind, they also do not allow for subkinds, and hence are illicit in *some* exclamatives. A similar line of reasoning holds for (24b), as people that are in the next room do not form a kind.

(24) a. ??This is some green bottle!

b. #John is some person from the next room!

As noted by Constantinescu (2011), some nouns do not have readily accessible stereotypical properties associated with them, such as *building* or *room*. Since kinds correspond to general properties that characterize groups of individuals, we might suppose that the lack of stereotypical properties for *building* and *room* would make subkinds for them difficult to construe in many

contexts. This predicts that *building* and *room* would be difficult to use in *some* exclamatives, which seems to be the case (25). Other nouns that lack stereotypical properties, such as *non-Methodist* (Morzycki, 2012), are also difficult to use. This is another piece of evidence that kinds are involved in *some* exclamatives.

(25) a. ??This is some building!

b. ??This is some room!

(26) ??He is some non-Methodist!

Finally, an additional piece of evidence suggesting that there is reference to kinds in *some*-exclamatives can be found by looking at post-nominal adjectives like *navigable* and *visible*. As noted by Bolinger (1967), these adjectives obligatory get temporary, episodic interpretations when used post-nominally, as in (27). However, when these adjectives are used in the canonical pre-nominal position, like in (28), these adjectives either get the episodic interpretation, or an interpretation where they are commenting on inherent, stable properties.

Larson & Marušič (2004) go a step further and claim that this is a reflection of a stage-level/individual-level distinction, in the sense of Carlson (1977), where stage-level properties are temporary properties applying to spatio-temporally located stages of individuals, while individual-level properties are permanent properties applying to the whole individuals theirselves. This idea is closely related to kinds, in that instantiations of kinds (but not kinds themselves) are the sorts of objects that stage-level predications can be made of.

(27) a. the stars visible (stage-level only)

b. the rivers navigable (stage-level only)

(28) a. the visible stars (stage-level or individual-level)

b. the navigable rivers (stage-level or individual-level)

In *some*-exclamatives, pre-nominal adjectives are allowed, as shown in (29), while the same adjective

is barred post-nominally. If Larson & Marušič (2004) are correct in identifying the post-nominal position as being related to stage-level interpretation, then this is further support for a kind-level interpretation being used in *some*-exclamatives. As episodic stage-level interpretations must be predicated of individuals, the fact that these post-nominal adjectives are allergic to the noun phrase in *some*-exclamatives suggests that the NP is also not a predicate of individuals.

(29) a. This is some navigable river! (We barely made it to the river mouth alive!)

b. These are some visible stars! (I can barely see them, and I know where to look!)

To conclude this, I will assume that kinds play a role in the interpretation of *some*-exclamatives. In particular, I'll suggest that *some*-exclamatives make reference to subkinds of the kind denoted by the NP that the determiner *some* combines with.

5.4 Kinds within the DP

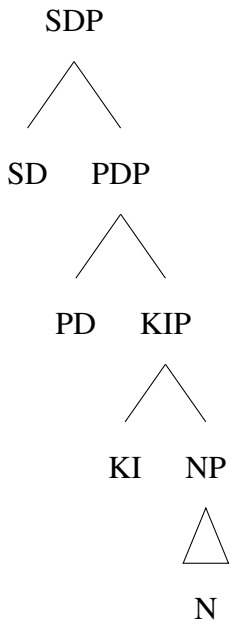
In the previous section, I argue that *some*-exclamatives involve reference to kinds, at some level. The locus for reference to kinds in *some*-exclamatives, I'll assume, is within the DP. I mention a few proposals that form the background to my analysis in this section, where I will ultimately assume a model that is similar in spirit to that of Zamparelli (1995)'s idea of a layered DP.

5.4.1 Zamparelli's layered DP

There are many proposals that put reference to kinds with the DP. One proposal is Zamparelli (1995). Zamparelli suggests that the DP be expanded into a number of functional projections (as in (30)). This creates a division of labor between the various projects in the structure; different types of semantic information is available at different levels in the DP structure, creating a close connection between the semantic derivation and the syntactic derivation. The projection closest to the NP, KIP, is involved in kind predication. Further up the tree, the PDP projection is involved in predication of ordinary individuals (its the level corresponding to the semantic type for properties

of individuals), while the SDP layer is involved with quantification and determination (e.g., with strong determiners).

(30) Zamparelli's Layered DP



I will not be assuming Zamparelli's model directly, but the concept that kinds are represented low within the DP will be important for my analysis later in this section.

5.4.2 Kind arguments in common nouns

Another kind of approach is that of McNally & Boleda (2004). The problem that McNally & Boleda are trying to account for is the interpretation of nominals with relative adjectives, like the examples in (31). These adjectives pose a puzzle in that they do not behave like intersective adjectives, as shown in (32), where the (b) entailment only goes through with the intersective adjective.

(31) a. Marti is a technical architect.

b. John is a bankruptcy lawyer.

(32) a. Marti is a male architect. (intersective adjective *male*)

(i) Marti is an architect.

(ii) Marti is male.

b. Marti is a technical architect.

(i) Marti is an architect.

(ii) #Marti is technical.

The solution, McNally & Boleda (2004) argue, is to imbue nominals with a second argument that can be the target of modification. In doing this, they borrow a move from Larson (1998), who argues that certain nouns have a Davidsonian event argument, in addition to the standard individual argument. This is based on the observation that a *beautiful dancer* can be both a dancer who is beautiful (a predication of the individual dancer), and a dancer who dances beautifully (a predication of the event of dancing).

The move that McNally & Boleda take isn't to put event arguments in common nouns, rather, but to put in a kind argument, corresponding to a kind in the sense of Carlson (1977). The denotation for the noun *architect* would look as in (33).[1] The R is Carlson's realization relation, which holds between an individual and a kind just in case that individual is an instantiation of that kind.

(33) $[\![architect]\!] = \lambda k \lambda x [R(x,k) \wedge \textbf{architect}(k)]$

More generally, common nouns will a denotation like (33), where the noun denotes a relation between kinds and individuals, type $\langle k, et \rangle$.

Relational adjectives, like *technical* in *technical architect* denote properties of kinds, like in (34). These are combined with the noun using a modified intersective modification rule in (35).

(34) $[\![technical]\!] = \lambda k [\textbf{technical}(k)]$

(35) If α is a branching node and β and γ are the node's daughters, and β is type $\langle k,t \rangle$ and γ is type $\langle k, et \rangle$, then $[\![\alpha]\!] = \lambda x_k \lambda y [[\![\gamma]\!](x)(y) \wedge [\![\beta]\!](x)]$

The denotation for *technical architect* would be the logical form as in (36), via putting the common

[1] I've slightly redeveloped their formal notation in this section.

noun together with the adjective via the compositional rule above.[2]

(36) $[\![\textit{technical architect}]\!] = \lambda k \lambda x\,[R(x,k) \wedge \textbf{architect}(k) \wedge \textbf{technical}(k)]$

This analysis helps explain certain properties of relational adjectives, including their entailment patterns and the fact that relational adjectives seem to be quite low in the noun phrase. There are a couple drawbacks to this sort of system, however. The first is that it is quite unintuitive to think of nouns as being inherently relational. Moreover, putting the *R* relation into the semantics of nouns seems to be missing a generalization as to the nature of the relationship between kinds and objects. Finally, by putting the kind argument in the nominal, we lose any hope for a clean mapping between the syntax and semantics with respect to the distinction between kinds and objects. Although this proposal is interesting, these considerations should make us wary of adopting it. In the next section, I briefly discuss a related proposal that will form the basis for the analysis of *some* in later sections.

5.4.3 Types, tokens, and NumP

Gehrke & McNally (2013) argue for a system similar to that of Zamparelli (1995), with kinds represented low within the DP. However, rather than treating the noun as directly denoting a kind, as Zamparelli does, they suggest that the noun denotes a property of kinds.

(37) $[\![car]\!] = \lambda x_k\,[\textbf{car}(x)]$

In order to make this property something that can be predicated of ordinary objects, it must be transformed into a property of token entities and not kinds. They suggest, following related proposals by Déprez (2005) and Müller-Reichau (2011), that NumP is the locus for this operation. This is illustrated in (38), where *R* is a variant of Carlson (1977)'s realization relation, which relates kinds to individuals that instantiate them.

(38) $[\![[_{NumP}\ [_{NP}\ car]]\!]] = \lambda y \exists x_k\,[\textbf{car}(x_k) \wedge R(y,x_k)]$

[2] McNally & Boleda (2004) saturate the kind argument with a free pronoun that is valued with a contextually-determined kind. I see no reason that a similar effect couldn't be obtained using existential closure or a choice function.

This has the benefit of providing a transparent mapping between syntax and semantics, unlike the system in McNally & Boleda 2004. I will assume a version of this in my analysis of *some*-exclamatives later in this chapter, where *some* plays the role of a Num head and realizes kinds.

5.4.4 Weir (2012)'s analysis of *some*

Before moving on to my analysis, it should also be noted that Weir (2012) has also proposed that, in certain environments, *some* is sensitive to kinds. He notices examples such as (39), where what the speaker is expressing ignorance about is which kind of object is being referred to. These examples cannot be paraphrased with the form 'I saw a contraption in the copy room and I don't know which contraption it was,' but must be paraphrased with something more like 'I saw a contraption in the copy room and I don't know what kind of contraption it was.'

(39) a. I saw some contraption in the copy room this morning.

b. I came home to find some plant growing through a hole in my wall.

c. Doctor, some growth appeared on my arm. Should I be worried?

The analysis proposed by Weir plays on common nouns being polysemous between being properties of individuals and properties of subkinds, and that *some* can quantify over both. First, he assumes, following Chierchia (1998), that a kind is the mereological sum of all the members of that kind in a given world. Following Kratzer (2008), he assumes that nominal roots denote this plurality. To build in the polysemy of common nouns between individual and kind interpretations, a classifier system is used, with classifiers for individuating and kind-related uses. These classifiers are overt in Chinese (Krifka, 1995), but covert in English. The individuating classifier asserts that some individual is a member of the kind denoted by the noun, while the kind classifier asserts that a kind is a subkind of the kind denoted by the noun. (These are both conveyed in the denotations by a 'part of' relation Π.)

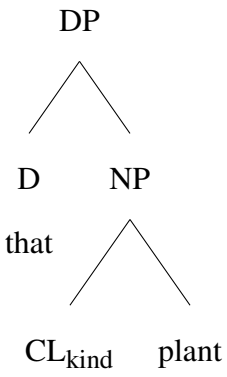
(40) $[\![plant]\!] = \text{PLANT}$

(41) a. $[\![CL_{ind}]\!] = \lambda x \lambda y.\mathbf{kind}(x) \wedge \mathbf{individual}(y) \wedge y \Pi x$

b. $[\![CL_{kind}]\!] = \lambda x \lambda y.\mathbf{kind}(x) \wedge \mathbf{kind}(y) \wedge y \Pi x$

To get a subkind reading of a DP such as *that plant*, the DP would be structured as in (42). The logical form is provided in (43).

(42)



(43) a. $[\![CL_{kind}\ plant]\!] = \lambda y.\mathbf{kind}(y) \wedge \mathbf{kind}(\text{PLANT}) \wedge y \Pi \text{PLANT}$

b. $[\![that]\!] = \lambda f_{\langle e,t \rangle}.\iota x\,[P(x)]$

c. $[\![that\ [CL_{kind}\ plant]]\!] = \iota x\,[\mathbf{kind}(x) \wedge \mathbf{kind}(\text{PLANT}) \wedge x \Pi \text{PLANT}]$

For *some*, Weir adapts the analysis of *algún* from Alonso-Ovalle & Menéndez-Benito (2010), but with a crucial addition: rather than have the scope of the quantifier Q apply to the x that the restrictor P applies to, it is a subpart of x that Q applies to. This move is made to have *some* quantify over instantiations of subkinds rather than subkinds themselves.

(44) $[\![some]\!] = \lambda f_{\langle et,et \rangle} \lambda P_{\langle e,t \rangle} \lambda Q_{\langle e,t \rangle} : \mathbf{anti\text{-}singleton}(f).\exists x\,[f(P)(x) \wedge \exists y\,[y \Pi x \wedge Q(y)]]$

This analysis provides an analysis for why *some*, in certain uses, is implicating ignorance not about a particular individual, but about which subkind an individual instantiates. More generally, this analysis is important for my analysis of *some*-exclamatives as quantifying over subkinds, in that it shows in an independent way that *some* can generally be thought to be sensitive to kinds.

5.5 Alternatives and indefinites

Hamblin (1973) proposed that the denotations of questions were sets of propositions corresponding to answers to that question. A question of the form *Who came to the party?* could be considered as having the set of alternatives in (45), for instance, with *who* signaling the syntactic position the alternative propositions should have their content varied. This set raises an issue as to which particular proposition is true.

(45) $$[\![\textit{Who came to the party?}]\!] = \left\{ \begin{array}{c} \text{Mary came to the party,} \\ \text{Bill came to the party,} \\ \text{Bob came to the party,} \\ \ldots \end{array} \right\}$$

This view of questions has come to be quite influential, and, with modifications later by Karttunen (1977) and Groenendijk & Stokhof (1984), the view that questions denote sets of propositions has become a dominant view in their analysis.

The idea of treating linguistic expressions as invoking alternatives has only been applied to the semantics of questions, however. Rooth (1985, 1992) proposed that focus could also be thought of in terms of alternatives, with the focused constituent being substituted for other constituents of the same type in a set of propositions, similar to the role the *wh*-word plays in generating a question. Alternatives have been argued to also play a role in scalar implicatures (Chierchia, 2004), disjunction (Alonso-Ovalle, 2006), topichood (Büring, 1997) and indefinites (Alonso-Ovalle & Menéndez-Benito, 2003; Menéndez-Benito, 2005).

Hagstrom (1998) and Ramchand (1997) propose that sentences with wh-in-situ elements in Japanese and Bengali, respectively, should be given a question-like semantics, in the style of Hamblin (1973). In this kind of semantics, sentences with these elements denote sets of propositions (alternatives) rather than single propositions. Kratzer & Shimoyama (2002) build on these kinds of analyses and show how indeterminate pronouns in both German and Japanese can be given a compositional analysis, where alternatives are part of the compositional semantics of the sentence,

rather than in a post-compositional system. This view that indefinites generate sets of alternatives, raising an issue as to which individual an existential claim holds of, was further pursued for Spanish *algún* in Alonso-Ovalle & Menéndez-Benito 2003.

More recently, work in Inquisitive Semantics (Ciardelli et al., 2013; Groenendijk & Roelofsen, 2009) has also analyzed indefinites as introducing sets of alternatives (AnderBois, 2012). These alternatives play a role at a different level that the alternatives in Kratzer & Shimoyama 2002, being part of the top-level update to the common ground rather than being a compositional tool, but the notion of indefinites as pragmatically raising an issue is related. My treatment of *some* in this chapter will have more in common with the approach of Kratzer & Shimoyama 2002 than of AnderBois 2012, where I analyze *some* being implicated in building a set of alternatives. Moreover, for my purposes, it will be crucial that alternatives be available as part of the compositional machinery of the sentence.

5.6 Deriving the exclamative

5.6.1 *Some* and kinds

My basic proposal for what *some* does in *some*-exclamatives will be to say that *some* quantifies over subkinds. In section 5.3, I argue that *some* is sensitive to kinds, based primarily on its behavior with nominals that lack well-defined kinds. What I will assume is that it's not just kinds that *some* quantifies over, though, but subkinds. This idea has some things in common with Weir 2012, namely that in certain cases, what *some* expresses ignorance about is the particular subkind that is instantiated by an individual. In *some*-exclamatives, this ignorance will instead be expressed as an exclamation about which particular subkind the individual is instantiating.

If *some*-exclamatives merely involve reference to subkinds, what we should expect *some*-exclamatives to be able to exclaim about in a natural way is subkinds of professions. In other words, we should expect the exclamation in (46) to be about subkinds of lawyers (bankruptcy, divorce, personal injury), and the exclamation in (47) to be about subkinds of architects (landscape,

residential, industrial). These exclamations don't seem to involve reference to those particular subkinds, or even subkinds of professions at all. Rather, they involve reference to the particular ways in which they exemplify lawyerhood or architecthood in doing their jobs.

(46) John is some lawyer!

(47) She is some architect!

This can be explained by noting that those subkinds—bankruptcy lawyers, divorce lawyers, landscape architects, residential architects—are not subkinds one instantiates by virtue of participating in events. Barring certain occasions such as graduation ceremonies or being asked at a workplace to do a particular job for a day, divorce lawyers are not normally divorce lawyers by virtue of participating in an event, and similarly for landscape architects. On the other hand, the properties that *some*-exclamatives seem to track—for lawyers, winning cases, doing pro bono work, or charging a lot of money, like the follow-up sentences in (48)—are properties that can more easily be construed as being associated with events.

(48) John is some lawyer!

a. He always wins his cases and does lots of pro bono work.

b. He loses every case and still charges a lot.

In some ways, this is a similar phenomenon to Constantinescu (2011)'s notion of "natural consequences" identifying and defining subkinds in the meaning of *such*. What Constantinescu notices is that result clauses with internal *such*, such as in the examples below, are licensed only in certain situations. When the result can be construed as an event that could arise from a subkind of the noun phrase that *such* merged with, the result is acceptable. Otherwise, if no natural connection can be found between the subkind and the result, the result will be unacceptable. In the examples in (49), *person* does not have readily accessible subkinds such that those subkinds would result in not being hired, while *idiot* does, on the assumption that the subkinds involved are degrees of idiocy.

(49) a. *He is such a person that no one will hire him.

b. He is such an idiot that no one will hire him.

Beller (2013) also notices that neutral nouns can become pejorative in certain contexts, particularly when used with the intensifying *such*, as in (50). In these cases, Beller argues that the interpretation is based on getting a behavior-based reading for the noun (e.g., *doctor*), where the pejorative attitude is wrapped up with the behaviors associated with being of the type denoted by the noun. He shows this by showing that denying that the individual behaves in (negative) stereotypical ways is unacceptable, while it is acceptable in neutral contexts. This is shown in (51).

(50) John is such a doctor!

(51) a. #John is such a doctor, though he doesn't act like a doctor at all.

b. John is a doctor, though he doesn't act like a doctor at all.

This is formally cashed out by internal *some* making reference to properties that are held by individuals for whom the noun applies (e.g., *doctors*) and not others, using the **char** (characteristics) function in (52). Some of these properties are then said to hold of the subject during a particular time interval. Another way of talking about this that seems nearly equivalent would be to talk of subkinds instantiated by a particular individual during an event.

(52) a. $[\![\textbf{\textit{char}}]\!] = \lambda P \lambda x \lambda i.\text{MOST } y \text{ s. t. } P(y), \text{MOST } z \text{ s.t. } \neg P(z), \exists Q_{\langle e,t \rangle} \text{ s.t. } Q(y) \wedge \neq Q(z) \wedge Q(x) \text{ at } i$

b. $[\![\textbf{\textit{char}}\ a\ \textit{doctor}]\!] = \lambda x \lambda i.\text{MOST } y \text{ s. t. } \textbf{doctor}(y), \text{MOST } z \text{ s.t. } \neg\textbf{doctor}(z), \exists Q_{\langle e,t \rangle} \text{ s.t. } Q(y) \wedge \neg Q(z) \wedge Q(x) \text{ at } i$

The extent to which my notion of subkinds instantiated during an event, Beller's observations regarding behavior-based judgements, and Constantinescu's observations regarding natural consequences are separate phenomena or reflect some unified property of reference to kinds is still unclear to me. What does seem to be the case is that in *some*-exclamatives (and perhaps in other

constructions more generally), reference to subkinds is not so straightforward as to simply be any subkind. Rather, the way that subkinds can be construed is entangled with the events that speakers are also considering.

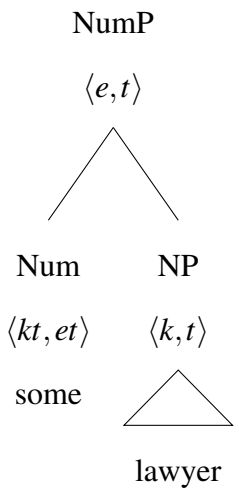
5.6.2 Semantics of *some*

Following the discussion the previous section, I'll assume that NPs denote properties of kinds. The denotation for the NP *lawyer* will be the property corresponding to the lawyer-kind. This predicate will be true of any kind that is a subkind of the lawyer-kind.

(53) $[\![lawyer]\!] = \lambda k.\mathbf{lawyer}(k)$

Following proposals from Müller-Reichau (2011), Gehrke & McNally (2013) and others, I'll take Num as being the locus for shifting properties of kinds to properties of individuals. What shifts kinds to individuals in my analysis is *some*. Accordingly, *some* will be merged low, as a Num head, take the NP as an argument, and yield a property of individuals, making *some* type $\langle kt, et \rangle$.

(54)



The denotation of *some* in this system will be as in (55) below. The basic role of some is to take the property of kinds denoted by the NP, and transform it into a property of individuals by quantifying over subkinds.

(55) $[\![some]\!] = \lambda K_{\langle k,t\rangle} \lambda x_e : \underline{|p| > 1}$.a set p s.t. $p = \{p' : \exists k$ s.t. $p' = {}^{\wedge}[R_e(x,k) \wedge K(k)]\}$

This denotation is complex in certain ways and needs to be discussed in additional detail. First, *some* here has two arguments, a property of kinds K and an individual argument x. Skipping ahead to the asserted portion of the denotation (rather than the presupposed content, which I will return to), *some* asserts the existence of a set of propositions p (a set of propositions based on the notion that indefinites trigger the generation of alternatives). Each propositions asserts that the kind k is a subkind of the property of kinds denoted by the NP, K, and that the individual x is a realization of this kind. With k scoping outside of the proposition, p will be a set of propositions that vary with respect to subkind.

In light of the discussion in section 5.6.1, it's important to briefly discuss R. R here is a variant of the realization relation from Carlson (1977), differing in that it relates individuals and kinds rather than stages and kinds. For my purposes here, $R(x,k)$ is true just in case x is a member of the kind denoted by k. Importantly, though, R is relativized to an event e as well. What this conveys is realization of the kind by virtue of being a participant of some event e. This is intended to capture the observation in section 5.6.1 that the kinds associated with *some* exclamatives are those that are directly connected with an event. Rather than quantify over this variable immediately, I leave it open and assume that it is implicitly valued by the speaker at a later point.

Finally, I should return to the underline portion in the denotation. As claimed earlier in this chapter (and also see chapter 4), *some* is an epistemic indefinite, requiring that the speaker not have precise knowledge as to the identity of some individual. Although the particular way that this gets cashed out in different theoretical analyses varies, there are several that are especially worth attention here. The first is an analysis in Farkas 2002. In this paper, Farkas analyzes *some* as requiring that the variable it contributes be unidentified—that is, that the value that variable is assigned not necessarily be the same across all possibilities. In essence, this is a way of ensuring that the speaker can never commit to a particular valuation for that variable.

The second proposal that is necessary to mention is that of Alonso-Ovalle & Menéndez-Benito

(2010). As discussed previously, they propose that the ignorance implicature of Spanish *algún* can be modeled through competition with *un*. They analyze *algún* as in (56), where *algún* combines first with a subset selection function f, a function from sets to sets. The use of the subset selection function models contextual domain restriction. f in this analysis is restricted via the presupposition **anti-singleton**(f) so that its range must be a non-singleton set. When f combines with the restrictor of *algún*, the NP, the effect is to make it so that there must be at least two individuals that could possibly satisfy the existential claim. *Un* is analyzed as not having the anti-singleton presupposition, and the ignorance component of *algún* surfaces as an implicature through competition with *un*.

(56) $[\![algún]\!] = \lambda f \lambda P \lambda Q : \textbf{anti-singleton}(f).\exists x\,[f(P)(x) \wedge Q(x)]$

Finally, a third proposal that needs to be mentioned is that of von Fintel (2000). This analysis is not about *some* per se, but about *whatever*, which also includes a sense of uncertainty about it.[3] von Fintel builds on Dayal (1997)'s analysis of *whatever* in assuming that *whatever* has a presupposition of ignorance. The presupposition is most relevant for my purposes here, in that it forces the speaker to not be able to identify which particular individual satisfies P, just that there are at least two.

(57) whatever$(w)(F)(P)(Q)$

a. Presupposes: $\exists w', w'' \in F : \iota x.P(w')(x) \neq \iota x.P(w'')(x)$

b. Asserts: $\forall w' \in F : Q(w')(\iota x.P(w')(x))$

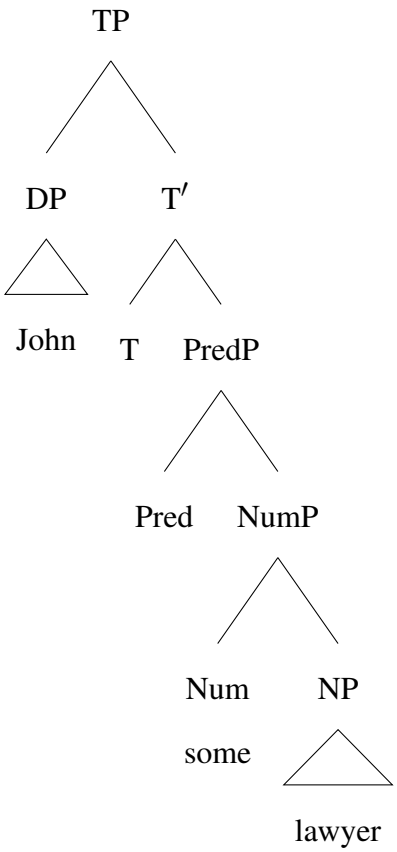
What these proposals have in common is a general analytical intuition that *some* imposes a requirement that the speaker cannot commit to a particular individual, but rather must leave it as an open possibility that there are multiple individuals who could satisfy the claim. In my analysis of *some*, I follow this same idea, and encode it with the presupposition in the underlined portion of (55). The presupposition requires that there be at least two propositions in the set of alternatives generated by *some*. As these alternatives vary by subkind, this will amount to a requirement that there be at least two subkinds that could possibly hold of the individual x. This behavior of *some* will be important

[3] In classnotes, von Fintel has an analysis of *some* that is similar, according to Alonso-Ovalle & Menéndez-Benito (2010). See von Fintel 1999.

in the next section for building the exclamative interpretation.

The structure for the sentential core of the exclamative clause will be as in (58). A derivation for the core of the exclamative *John is some lawyer!* is as in (59).

(58)



(59) a. $[\![\textit{some}]\!]([\![\textit{lawyer}]\!]) = \lambda x_e : |p| > 1.$ a set p s.t. $p = \{p' : \exists k \text{ s.t. } p' = {}^{\wedge}[R_e(x,k) \wedge \textbf{lawyer}(k)]\}$

b. $[\![\textit{some lawyer}]\!]([\![\textit{John}]\!]) = [\![\textit{John is some lawyer}]\!]$

$= \{p' : \exists k \text{ s.t. } p' = {}^{\wedge}[R_e(\mathbf{j},k) \wedge \textbf{lawyer}(k)]\}$

To summarize this section, *some* generates a set of alternatives that vary by subkinds instantiated by the subject. This set of alternatives is further constrained by a presupposition that says that this set must contain at least two alternatives in it. This constraint is what models the epistemic indefinite nature of *some* in other contexts. In the next section, I use this fact about *some* in conjunction with an exclamative operator to build the full meaning of *some*-exclamatives.

5.6.3 Building the exclamative

The previous sections leaves off with the core of the *some*-exclamative denoting a set of propositions that vary as to which particular subkind the subject instantiates. This set of alternatives isn't the meaning of the exclamative, though—what it means to exclaim using a *some*-exclamative isn't simply to say that there are some number of subkinds that could be instantiated. Rather, there must be an attitude towards a particular subkind that is being instantiated.

Earlier in this chapter, I note that *some*-exclamatives involve a particular intonational contour, and that without this contour, the exclamative meaning cannot arise. What I will take this contour to be expressing is an additional layer of meaning that transforms the set of alternatives denoted by the sentential core of the *some*-exclamative into a sentence with the appropriate meaning.

One possibility for how this operation is that we could identify it with the widening operation used by Zanuttini & Portner (2003). I argue that widening might not be the correct way to think about what is happening with *some* exclamatives, though. One theory-internal reason has to do with the analysis of *some* I am assuming. I analyze *some* as an epistemic indefinite that triggers the generation of at least two alternatives (in order to model the ignorance required of the speaker). The alternative-generating flavor of *some* follows work in alternative semantics and other areas that argues that indefinites as a class are associated with alternatives. This would mean that sentences using the singular indefinite *a* (as in *a lawyer*) would also have a set of alternatives associated with them. If widening is the operation involved in *some*-exclamatives, it's not clear why only *some* but not *a* should be involved in creating an exclamative. Ideally, we should peg the lack of an *a*-exclamative on the fact that *some* and the indefinite *a* impose different requirements on the alternatives.

Widening in Zanuttini & Portner (2003)'s analysis does two things. First, it is a way of capturing the intuition that exclamatives exclaim about high degrees of a property, as high degrees are outside of the normal domain of quantification. What widening also does is capture the notion of unexpectedness that also seems to be inherent to exclamatives, again by widening the domain to

include propositions that were outside of those that were expected.

A somewhat different approach is used by Castroviejo Miró (2008), whose EI (exclamative intonation) operator partitions a set of propositions into a single, strongest true proposition, a set of weaker but true propositions, and a set of false propositions. My approach will follow Castroviejo Miró's in partitioning a set of alternatives along some dimension. Borrowing from Chernilovskaya & Nouwen (2012), the relevant notion will be noteworthiness. Chernilovskaya & Nouwen note that noteworthiness is a vague concept, but even though it's vague, it's a concept where there are clear intuitions on what counts as noteworthy and not. For instance, they point out that a blackberry, chicken liver and cauliflower cake is noteworthy as a cake, while the font used in their paper (a common serif font) is not noteworthy. More generally, they believe, noteworthiness can be thought of as standing out considerably with respect to some comparison class.

This notion of noteworthiness is somewhat harder to apply to propositions rather than entities. Drawing up comparison classes of entities is a familiar task, but drawing up a comparison class for propositions is somewhat more difficult. What I will invoke is similarity, which of course is fraught with its own issues (Goodman, 1972). Two objects count as similar if we can treat them as being sufficiently indistinguishable from each other, for whatever purposes we have in mind. Thinking of this in terms of noteworthiness, objects that are sufficiently similar to each other do not have noteworthy differences (with respect to the dimensions(s) they are being judged to be similar). What it means to be noteworthy, then, is to fall outside of the class of objects that are similar to each other.

To relativize this to propositions, we can conceive of worlds as being similar to each other as well. In some worlds, the coffee cup sitting on my desk is just a little to the left or a little to the right of where it is now. When judging worlds based on the location of my coffee cup, those worlds are sufficiently similar to the actual world. On the other hand, worlds where I studied geology, math, or some other field might be judged dissimilar to the actual world. A definition for noteworthiness is given in (60), which simply says that a proposition is noteworthy if it's not similar to another world.

(60) A proposition p is noteworthy to an individual x in world w (the actual world) iff $\forall w' \in Sim_{w,x}.w' \notin p$ (Sim_w, x is the set of worlds that are similar to w for individual x)

I define my exclamative operator using this notion of similarity in (62). This operator combines with the set of propositions that were generated by using *some* and asserts that the set of propositions can be partitioned into noteworthy and non-noteworthy propositions. The partition creates a contrast among propositions to say that some are worth remarking about, similarly to how domain widening in Zanuttini & Portner (2003) naturally builds up a contrast between the expected propositions in the unwidened set and the unexpected proposition in the widened set.

This partition also helps explain why *some* (but not *a*) participates in building an exclamative. Due to *ExOp* needing at least two propositions in order to partition the alternatives into noteworthy and non-noteworthy sets of alternatives, *ExOp* must combine with a set that has at least two members in it, ensured by the presupposition of there being a non-noteworthy proposition in that set. The singular indefinite *a* cannot create an exclamative because it will not guarantee that the set it builds will have two members. On the other hand, *some* will guarantee this, due to its anti-singleton presupposition.

(61) $$[\![ExOp]\!]^w = \lambda P_{\langle st,t\rangle} \exists p \in P : \neg \textbf{noteworthy}_w(x,p).\exists p' \in P \left[\begin{array}{c} \textbf{noteworthy}_w(x,p') \wedge \\ w \in p' \wedge \text{ATT}_x(p') \end{array} \right]$$

ExOp also asserts an attitude ATT towards a noteworthy proposition. This attitude is held by an individual x, which will get valued as the speaker. This attitude is generally a positive or negative attitude towards the proposition.

5.7 A final puzzle: fronting of the *some*-DP and pejorativity

The examples of *some*-exclamatives discussed so far all involve a structure where the DP headed by *some* appears after the copula, as in (62).

(62) a. John is some lawyer!

b. *Syntactic Structures* is some book!

Those examples contrast strikingly with a structure where the *some*-DP has been preposed, like in (63). Specifically, the exclamatives in (62) have two interpretations. Under one interpretation, the subject has a positive attitude towards John or *Syntactic Structures*. Under a second interpretation, however, the subject only has a pejorative attitude towards John or *Syntactic Structures*. When we compare this to the sentences in (63), what we find is that the sentences in (63) have only the pejorative interpretation.

(63) a. Some lawyer John is!

b. Some book *Syntactic Structures* is!

We can show that this is true by trying to fix the attitude as either positive or negative. When the *some*-DP is post-copular, as in (64), both the (a) and (b) sentences are acceptable as follow-ups. However, when the *some*-exclamative has a preposed *some*-DP, as in (64), the (a) sentence, which expresses a positive attitude, is infelicitous.

(64) John is some lawyer!

a. He always wins his cases and does lots of pro bono work.

b. He loses every case and still charges a lot.

(65) Some lawyer John is!

a. #He always wins his cases and does lots of pro bono work.

b. He loses every case and still charges a lot.

As far as I am aware, the fact that raising the *some*-DP enforces a pejorative interpretation has not be noted. However, this seems to be an important and interesting property of this exclamative construction.

5.8 Conclusion

This chapter provided an analysis of *some*-exclamatives, which have remained understudied in the broader literature on exclamatives. *Some*-exclamatives are interesting, in that they show another example of an exclamative construction where the exclamative is not derived from morphology related to the formation of questions. The analysis I propose suggests a refinement of our understanding of exclamative sentences. Proposals such as those of Gutiérrez-Rexach (1996) and Zanuttini & Portner (2003) analyze exclamatives as having a question semantics. Recent work in the semantics of indefinites has argued that indefinites also have an alternative semantics associated with them, making them quite closely related semantically to questions. This connection allows us to very easily make sense of *some*-exclamatives and exclamatives as a whole; exclamative constructions are not about questionhood, as proposed by Gutiérrez-Rexach (1996) and Zanuttini & Portner (2003), but are rather about manipulating sets of alternatives.

CHAPTER 6

CONCLUSION

6.1 A few remarks

This dissertation has examined several different constructions that are examples of intensification and attenuation in English. In this chapter, I provide some closing thoughts on how intensification and attenuation are decomposed, what this means for unification, as well as additional thoughts on the nature of the typeshift PREC.

6.2 PREC: typeshift or functional head?

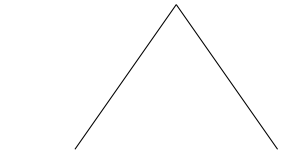
Chapters 2 and 3 make use of PREC. In those chapters, I've called PREC a typeshift in order to signal that its grammatical purpose is to shift something from being non-gradable into being something gradable. It's worthing lingering for a minute on how to best think about PREC, though. Is PREC an asyntactic typeshift, a "fix" by the meaning component of the grammar in order to avoid a typeclash? Or, is it better to think of PREC as being a morpheme and in the syntax?

There are two ways of thinking about PREC as a typeshift. First, we can think of it as an operation that applies to a linguistic expression in order to change it from one type to another. Representatives of this kind of approach in the semantics literature include Partee (1987) and Chierchia (1998), who develop systematic ways of converting expressions of one type (say, type $\langle e,t\rangle$) into expressions of a different type (such as type e or type $\langle et,t\rangle$). (I use part of this system in my analysis in chapter 4.) Understood in this way, PREC is part of this family, a way of changing an expression of any type α into a gradable type $\langle d,\alpha\rangle$.

In this view, PREC is not necessarily syntactically represented. PREC applies as a way of fixing the semantic representation. Suppose that a modifier requires a gradable category, and it has been

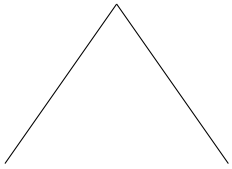
inserted as the sister to a non-gradable category, as schematized in (1a). This would result in a typeclash, since neither expression could apply to the other. With PREC applied to the expression on the righthand side, however, the computation can then proceed, as in (1b).

(1) a. Type clash!



$\langle\langle d,\alpha\rangle,\beta\rangle$ α

b. β



$\langle\langle d,\alpha\rangle,\beta\rangle$ $\langle d,\alpha\rangle$ (via PREC)

A second way of thinking about what PREC does is to think of it as a rule of interpretation. Function application can be thought of as the standard way of composing two expressions that are syntactically sisters, but other rules of interpretation could in principle be defined. One rule that semanticists frequently help themselves to is a rule for intersective interpretation, Predicate Modification (Heim & Kratzer, 1998). Defined in (2), Predicate Modification is a way of composing two expressions where both are type $\langle e,t\rangle$, such as with intersective adjectives modifying common nouns, like in (3).

(2) Predicate Modification (Heim & Kratzer, 1998)

If α is a branching node, $\{\beta,\gamma\}$ is the set of α's daughters, and $[\![\beta]\!]$ and $[\![\gamma]\!]$ are both in $D_{\langle e,t\rangle}$, then $[\![\alpha]\!] = \lambda x \in D_e.\,[\![\beta]\!](x) = [\![\gamma]\!](x) = 1$

(3) a. $[\![dog]\!] = \lambda x.x$ is a dog

b. $[\![happy]\!] = \lambda x.x$ is happy

c. $[\![happy\ dog]\!] = \lambda x.\,[\![happy]\!](x) = [\![dog]\!](x) = 1$

However, other rules of interpretation have been proposed as well. For instance, Chierchia (1998) defines a rule of interpretation Derived Kind Predication that existentially quantifies over instantiations of a kind when the kind would otherwise be an argument to a predicate that requires instantiations.[1] And, Heim & Kratzer (1998) define a version of function application, Intensional Functional Application, that is used when a predicate requires the intension of its argument (such as *believe* and its clausal complement).

(4) Intensional Functional Application (Heim & Kratzer, 1998)

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

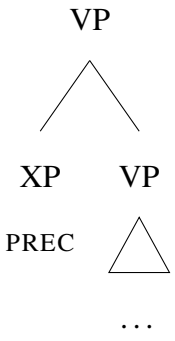
Talk of PREC could in principle be understood in this way as well; when we talk of PREC, what we are really talking about is a special rule of function application that includes the same operation that the PREC typeshift performs, namely binding the degree of precision. Like the previous notion of typeshift, this rule is used to fix incompatible types, with the difference being that it doesn't apply to a particular linguistic expression in order to shift the type of that expression, but rather is a definition of how expressions of particular types are composed. An example of how this rule could be written is as in (5).

(5) If α is a branching node, $\{\beta, \gamma\}$ is the set of α's daughters, if $[\![\beta]\!]^{d'}$ is a function whose domain contains $\lambda d.[\![\gamma]\!]^{d}$, then $[\![\alpha]\!]^{d'} = [\![\beta]\!]^{d'}(\lambda d.[\![\gamma]\!]^{d})$

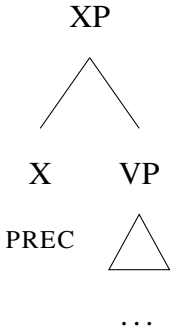
But, there are ways of thinking about PREC in syntactic terms as well. Rather than thinking of PREC as something that is used to fix the semantic representation post-syntactically, we could also think of PREC as being syntactically present as a morpheme in our semantic representation. In this view, PREC is an unpronounced functional category that is either adjoined to another category (e.g., adjoined to VP, as in (6)) or takes the category as its complement (as in (7)).

[1] Derived Kind Predication (Chierchia, 1998): If P applies to objects (instantiations of a kind) and k denotes a kind, then $P(k) = \exists x\left[^{\cup}k(x) \wedge P(x)\right]$

(6)



(7)



To some extent, the choice here is determined by one's beliefs about the relationship between syntax and semantics. If you prefer a semantics that can be transparently read off the syntax, putting PREC in the tree is preferable. On the other hand, if you prefer a simpler syntax with no unpronounced categories, the only choice is to make the semantics more complicated and make PREC a typeshift.

But, there do seem to be some avenues for settling this. For instance, if PREC were represented syntactically, we might expect it to be pronounced in some cases. Although English does not pronounce it (like many other functional heads), we could conceive of PREC being pronounced in some language. A morpheme like PREC that is overtly pronounced in some language would then be indirect evidence for treating PREC as part of the syntax in English.

All things being equal, treating PREC as a head has a benefit in explaining the limited distribution of the precision-affecting *very* and *sorta/kinda* as well. As shown in the (b) examples in (8) and (9) below, there are lexical items that can be used both for increasing precision (*all*, (8b)) and for decreasing precision (*about*, (9b)). I analyze *very* and *sorta* as modifiers that increase and decrease precision, respectively, but these modifiers cannot be used in the same ways that *all* and *about* can

be, as shown in the (c) examples.

(8) a. The townspeople are asleep.

b. All the townspeople are asleep.

c. *Very the townspeople are asleep.

(9) a. Twenty people were at the party.

b. About twenty people were at the party.

c. *Sorta twenty people were at the party.

What do we make of this? One possibility is that there are subtle semantic differences that prevent *very* and *sorta* being used in these positions, although it's not clear to me what precisely these differences would be. If we treat PREC as a functional head, however, and *sorta* and *very* as modifiers that are licensed in the specifier of that functional projection, we can explain the unacceptable examples above. In these examples, presumably, PREC is not able to take definite noun phrases or numerals as its complement, due simply to selectional restrictions. It's well-known that certain categories impose selectional restrictions, and treating PREC as a morpheme rather than an asyntactic typeshift could help explain restrictions in the distribution of *very* and *sorta* as a type of syntactic selection.

6.3 Decomposition of intensification and attenuation

The phenomena investigated here present a case study in what sorts of pieces are used in intensification and attenuation, at least for particular types of phenomena. The picture I paint is one where imprecision, approximation, and exclamatives can be decomposed into smaller components that are shared across particular instances of these phenomena.

Chapters 2 and 3 focus on the mechanics of imprecision regulation. The certain claim with these chapters is that a covert typeshifting mechanism, PREC, allows degree-expressions access to the degree of precision used for interpreting linguistic expressions. Fundamentally, these stories

decompose into stories about what kinds of degrees exist, where they are used, and how they are accessed. The conclusion is that there are fundamentally at least two types of degrees in natural language: degrees corresponding to measurement on inherent property scales, such as degrees of tallness or happiness, as found with gradable predicates, and degrees of precision that measure the exactness with which the speaker is using a linguistic expression. Correspondingly, these are also distinguished in where they are used and how they are access.

Degrees that measure along inherent property scales are found with gradable predicates in the form of degree arguments; certain predicates have, as part of their argument structure, an argument for a degree. The most common gradable predicates in English are gradable adjectives such as *tall* and *happy*, but other gradable predicates, such as degree achievements like *widen*, also exist. These types of predicates all make use of degrees inherently, requiring their degree argument to be saturated or bound by a quantifier. Degree constructions, such as superlatives, comparatives, and degree words like *very* and *slightly* all quantify over or otherwise provide a degree to fill the degree argument slot of a gradable predicate.

Although the claim that I make here is that imprecision is represented using degrees as well, the degrees that correspond to imprecision are represented in a different way than the degrees used for inherent property scales. Namely, whereas inherent property scales are part of the lexical makeup of particular predicates, degrees of precision live in the system that interprets expressions. Rather than being able to be accessed through the normal course of function application, degrees are special in that they require additional pieces to access them, such as the typeshift PREC. This dissertation provides a way of thinking about the relationship between degree words and imprecision, where degree words can become imprecision modulators by virtue of special typeshifts like PREC that can coerce non-gradable predicates into gradable predicates by providing an argument that corresponds to a degree of precision.

A second piece of the decomposition of intensification and attenuation is that of alternatives. First, alternatives are represented in the semantics for imprecision in chapters 2 and 3, in that the pragmatic halos that correspond to expressions are modeled using alternatives. Interpreting an

expression to a high degree of precision makes that expression have a small halo surrounding it, while lower degrees of precision require larger halos. These halos correspond to expressions that, for the purposes of the speaker in the discourse, are equivalent. That is to say, the alternatives that are generated are expressions that differ in pragmatically ignorable ways.

I also make use of alternatives in the semantics of NumSome. The role that alternatives play here is different from the role they play with *sorta* and *very*. With NumSome, alternatives are used implicitly in modeling the ignorance effect that comes from the use of *some*. The use of *some* in NumSome implicates that the speaker cannot in principle narrow the domain to a singleton number, due to the anti-singleton presupposition encode by *some*. In other words, an example like *twenty-some people* commits the speaker to saying that there were at least twenty people, but does not commit the speaker to what particular number of people there were. The inability to even in principle narrow the domain to a singleton implicitly raises the issue as to which particular number will satisfy the claim made by the speaker. In this way, the generation of the alternatives raises the issue of which particular alternative is true.

Alternatives play a role in the analysis of *some*-exclamatives as well. Like in the analysis of NumSome, *some* is implicated in generating sets of alternatives. Being an indefinite, *some* generates a set of alternative propositions, with the exclamative operator expressing an attitude towards a particular proposition from this set. Here, the alternatives are used to provide contrast with the alternative that is singled out by the exclamative operator.

The analysis of *some*-exclamatives makes use of two other components that are not found with the phenomena in the other chapters. First, I argue that *some*-exclamatives crucially depend on *some* combining with a noun phrase that can be construed as allowing for subkinds. Kinds play an integral role in this analysis, in that the alternatives that are generated by the determiner *some* are alternatives that vary with respect to the subkind of the NP that is instantiated by the subject of the exclamative. The second component used with *some*-exclamatives but not the other cases of intensification and attenuation investigated here is the exclamative operator. An exclamative operator is necessary in that it is used to map the set of alternatives that are the "core" of the *some*-exclamative into a single

proposition, since under standard views a set of propositions is not a suitable object to update the common ground.[2]

These analyses show that there are at least several different, more primitive components that are involved in the cases of intensification and attenuation examined in this dissertation. Moreover, with the exception of alternatives, these components are not in any sense shared between the various constructions; *some*-exclamatives have no use for PREC, for instance, and kinds do not play a role in NumSome. So, although this dissertation gives a clue as to what the basic components of intensification and attenuation might be, showing us that these notions involve a menagerie of components, what does this say about the hope for unifying various constructions involving intensification and attenuation?

6.4 On unification

When presented with phenomena that look relatively similar on the surface, the impulse is often to treat them as underlying similar as well. In fact, the title of this dissertation reflects this impulse, by categorizing particular types of constructions as instances of intensification and attenuation based on their superficial similarities. However, the cases I look at in this work suggest that we should be cautious in our attempts at unification, and that not everything in these broad semantic categories of intensification and attenuation can be unified.

Looking at the modes of analysis for the case studies here, we can see why we should not be particularly hopeful for unification. First, looking at the different types of phenomena involved here, it is clear that there is no hope for unification at that level—there is no sense in which *some*-exclamatives are imprecision-related, for instance. Second, the modes of analysis for each of the constructions I look at here also suggests that, broadly speaking, there is no hope for unification; not all of the analysis involve degrees (as the analyses for *sorta* and *very* require), not all the analyses involve kinds (as *some*-exclamatives require), and even though alternatives are used across all

[2] Although see work in Inquisitive Semantics (Ciardelli et al., 2013; Groenendijk & Roelofsen, 2009).

of the analyses, the actual way that alternatives are used varies. Alternatives are used to model expressions which are pragmatically equivalent in the analyses for *sorta* and *very*. On the other hand, alternatives are used to model ignorance with NumSome, and to create a contrast set in the case of *some*-exclamatives.

The disparate analyses here suggest that intensification and attenuation shouldn't be thought of as primitives in the grammar. Rather, these notions should be better thought of as descriptive generalizations about different sentence types and constructions; intensification and attenuation do not necessarily denote natural classes of phenomena. But, there is hope for unification, if we narrow our focus to subclasses of phenomena. By focusing just on subclasses of constructions, we might hope to find that there is at least unification within these smaller empirical domains. Two of these empirical domains are investigated in this dissertation: imprecision and exclamatives.

The analysis of imprecision in this dissertation focused on how imprecision could be construed as a degree-related phenomenon. This was built on the observation that both *sorta/kinda* and *very* very clearly have uses as degree words. The connection between their degree word sense and their imprecision-modulating sense is somewhat mysterious, unless we consider imprecision to be a fact that (at some level) is also a degree-related fact. I present a way of unifying imprecision (based on the framework used in Morzycki 2011) with other degree constructions.

Chapter 5 in this dissertation also implicitly suggests that exclamatives might allow for some degree of unification as well. The fact that *some* can be used to build an exclamative meaning with *some*-exclamatives is consistent if we adopt two particular views about how the nature of indefinites and exclamatives. First, if we assume that indefinite noun phrases generate sets of alternatives, as is argued for in work by Kratzer & Shimoyama (2002), among others, we can consider indefinite noun phrases to be of a kind with questions, in that questions are also associated with alternatives (on a Hamblin-Karttunen view of questions (Hamblin, 1973; Karttunen, 1977)). Second, one particular view of the semantics of exclamatives argues that exclamatives are underlyingly question-like in their semantics (Zanuttini & Portner 2003 is one representative of this view). Why *some* can be used to create exclamatives is quite clear if we adopt these views: exclamatives, rather than being in

the business of manipulating (the alternatives corresponding to) questions, are rather in the business of manipulating alternatives more generally. *Some*-exclamatives, by virtue of *some*, also have at their core sets of alternatives, and simply present a set of alternatives for an exclamative operator to manipulate. This subdomain of intensification—exclamatives—can be unified by considering what canonical *wh*-exclamatives and *some*-exclamatives have in common; here, I argue what they have in common is an alternative semantics.

The moral of the story is that unification shouldn't be assumed for broad theoretical domains a priori, but should instead be considered on a case by case (phenomenon by phenomenon, construction by construction) basis. We should not take intensification and attenuation is primitive notions, but should look at examples of them to determine what kinds of components underly each case. In this way, we can find classes of phenomena that are quite deeply related to each other by virtue of using the same pieces, rather than being related at a purely surface level. This dissertation explores what some of these components must be. For cases of imprecision, which cut across intensification and attenuation, a degree semantics is a fruitful way of making progress. For epistemic indefinites and approximation, ignorance can be modeled using domain restriction. And, for exclamatives, alternatives and kinds can be used to capture what speakers exclaim about. Future work in each of these domains should focus on decomposing the phenomena even more, in order to gain a clearer picture as to what the primitive components in the grammar are.

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