

M-modifiers, attenuation and polarity sensitivity ¹

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Abstract. Moderate-degree modifiers (M-modifiers) such as *fairly*, *somewhat*, *rather* and *kind of* and their cross-linguistic counterparts have received relatively little attention in the formal semantics literature. The present paper seeks to address this gap by pursuing three goals: first, to profile the distribution and interpretation of M-modifiers in English; second, to propose semantic analyses for individual M-modifiers; and finally, to provide an account of the consistent status of M-modifiers as positive polarity items, which we argue derives from competition with simpler unmodified forms. These results provide evidence that there are multiple compositional routes to (apparent) degree modification, as well as other sources of polarity sensitivity beyond those responsible for the behavior of better-studied items such as *any* and *ever*.

Keywords: degree modification, polarity, PPIs, scale structure, adjectives

1. Introduction

The topic of this paper is a class of degree modifiers that have been characterized in the descriptive literature as compromisers (Bolinger, 1972; Quirk et al., 1985) or moderators (Paradis, 1997), and which we refer to as moderate-degree modifiers, or M-modifiers for short. In (1) we illustrate the most prominent M-modifiers in English:

- (1) a. The issue is **fairly/pretty/somewhat/rather/kind of/sort of** important.
b. *The issue isn't **fairly/pretty/somewhat/rather/kind of/sort of** important.

The items in (1) have in common that—very roughly speaking—they all convey a moderate degree of the property in question. They are also all positive polarity items (PPIs), as evidenced by the unacceptability of the negated examples in (1b).

M-modifiers are present cross-linguistically, and in all cases we are aware of they pattern as PPIs. Examples from beyond English include German *ziemlich*, *recht* and *einigermaßen* (van Os, 1989), Dutch *best*, *aardig* and *nogal* (Nouwen, 2013), Russian *dovol'no*, *vrode*, *otčasti* and *kak-to* (N. Topaj, p.c.) and Japanese *kanari* (Ito, 2015), all of which express moderate degree, and exhibit the same positive/negative asymmetry characterizing the English items. Interestingly, across languages we observe similar diachronic sources for M-modifiers, including positive evaluative adjectives/adverbs, existentials, comparative adverbs, and taxonomic nouns.

In other cases the data are more complex. English *quite* behaves as an M-modifier in combination with relative gradable adjectives (*the issue is/??isn't quite important*); but in combination with maximum-standard adjectives and other expressions it is acceptable in both positive and negative contexts (*the cup is/isn't quite full*), though with subtly different interpretations in the two cases. As evidence that this isn't just an idiosyncrasy of English, German *ganz* 'quite,

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completely’ exhibits a similar pattern. And in Romance languages including Spanish, French and Romanian, the moderate-degree meaning is expressed by the same word used for ‘enough’. In positive sentences both readings are possible, but under negation only the ‘enough’ interpretation is available; that is, on their moderate-degree interpretation, such items are PPIs.

- (2) a. Ana e destul de înaltă.
 ‘Ana is pretty tall.’ / ‘Ana is tall enough.’
 b. Ana nu e destul de înaltă.
 ‘Ana is not tall enough.’ (Romanian; A. Nicolae p.c.)

On account of their moderate rather than extreme degree meanings, M-modifiers can be aligned to Israel’s (2011) class of attenuating polarity items, which make weaker assertions than salient alternatives. And like other attenuators, M-modifiers have received relatively little attention in the formal semantics literature. Exceptions include recent work by Nouwen exploring the characteristics of the M-modifier class (Nouwen, 2013, 2020), as well as a small number of contributions on individual M-modifiers (Krifka 1995 on *rather*; Anderson 2016 on *sorta*; Castroviejo and Gehrke 2016 on Catalan *ben* ‘well’).

The present paper seeks to address this research gap. We pursue three goals: first, to more accurately characterize the behavior of members of the M-modifier class in English; second, to develop compositional semantic analyses of individual M-modifiers; and finally, to account for the consistent PPI status of this class, as a step towards developing a more general theory of attenuating polarity items. We show that despite their superficial similarity in meaning, M-modifiers differ markedly in their distribution and interpretation (cf. a similar finding by Nouwen 2013 on Dutch M-modifiers), suggesting that they arrive at their effects via different compositional means. We further argue that the polarity sensitivity characterizing members of this class derives from the basic moderate-degree meaning that they all share, which results in a semantic overlap with the simpler unmodified adjective.

2. Empirical observations

To establish the empirical landscape of M-modifiers in English, we compiled frequency data from *The Corpus of Contemporary American English* (Davies, 2008-) (COCA).²³ We compared the the six M-modifiers, *pretty*, *fairly*, *rather*, *somewhat*, *kind of* and *sort of*⁴ in terms of the following: overall syntactic distribution, co-occurrence with gradable adjectives associated with four different scale types, and co-occurrence with non-gradable adjectives. Particular examples of usage found in the corpus also bring to light semantic and pragmatic contrasts between the six items. At the end of this section we discuss some further differences in inter-

²The data reported here can be viewed on the OSF site for this project: <https://osf.io/6hyeg>

³COCA is a corpus of over a billion words of text from North American fiction, periodicals and academic texts. The frequency data reported here were collected prior to a March 2020 update that significantly increased its size.

⁴The spellings *kinda* and *sorta* were include as well. In order to identify degree-modifier tokens and exclude non-M-modifier polysemes, individualized search protocols were developed. The search terms [pretty_r], [fairly_r] and [somewhat_r] were used (_r being the tag for adverbs). In order to exclude other adverbial uses of *rather*, the term [rather_rg] was used (_rg being the tag for degree adverbs) and -[*cc] was prefixed to searches to further exclude the strings *but rather* and *or rather*. The counts for [sort_rr21 of_rr22] (with the tags for two-word adverbs) and [sorta] were summed, as were those for [kind_rr21 of_rr22] and [kinda].

pretation which can be detected by means of constructed examples and tests, where it is not possible to establish the contrasts through corpus analysis.

2.1. Syntactic distribution

To gain insight into the syntactic distribution of the six M-modifiers, we searched for tokens of the modifier directly preceding various parts of speech (adjectives, adverbs, nouns, verbs, prepositions, determiners and articles). For each of the six items, the total number of occurrences in each environment was divided by the total number of tokens for that M-modifier in the corpus overall to determine the percentage of tokens that are pre-adjectival, pre-verbal etc.

All of the M-modifiers under consideration occur as (apparently) direct modifiers of adjectives and adverbs, but the frequency with which they do so varies considerably. On their degree-modifier usages, 80 - 92% of the occurrences of *fairly*, *pretty* and *rather* are pre-adjectival or pre-adverbial. This goes down to 67% for *somewhat*, while only 16% of the occurrences of *sort of* and 21% of those of *kind of* directly precede adjectives or adverbs.

As an adjective modifier, *somewhat* is unusual in that it freely combines with comparative adjectives (at the rate of 13.2% of its total tokens or a quarter of its pre-adjectival occurrences). To a lesser extent *rather*, *sort of*, and *kind of* can do so as well (1.5%, 0.3% and 0.2% of their total tokens respectively). An example from COCA is given in (3a), and (3b) shows the other modifiers that can be substituted for *somewhat*. But *pretty* and *fairly* never appear with comparatives in the corpus, and constructed examples such as (3c) are unacceptable.

- (3) a. My hair was somewhat longer.
b. My hair was rather/sort of/kind of longer.
c. *My hair was pretty/fairly longer.

The position directly preceding an article accounts for 14% of the tokens of *sort of*, 9% for *kind of*, 4% for *rather*, and 1% for *somewhat*. On closer inspection, the M-modifier in this position may serve either of two different functions: 'modification at a distance' of a gradable adjective, or modification of the entire noun phrase, even in the absence of an adjectival element. First, we observe that *pretty* and *fairly* must be adjacent to the adjectives they modify. But the other M-modifiers can precede the article of a modified noun phrase. A corpus example is given in (4a), with the licit and illicit substitutions for *rather* shown in (4b).

- (4) a. It has been rather a long time, Mrs. Barrington.
b. It has been somewhat/sort of/kind of/*fairly/*pretty a long time.

Second, those modifiers that allow this configuration can also modify the noun itself at a distance, as long as it has some vagueness or gradability to its meaning. The string in (5) occurs in COCA with each of the four M-modifiers in the example.⁵

- (5) It's rather/somewhat/sort of/kind of a mystery.

⁵*Somewhat* appears even more frequently in a kind of partitive construction. For example, while the string *somewhat a mystery* occurs 3 times in the corpus, the variant *somewhat of a mystery* has 34 hits.

The largest proportion of the tokens of *sort of* and *kind of* occur in pre-verbal position (49% and 52% respectively). They modify a wide range of verbal predicates, including those that are not gradable in any sense. Some examples from COCA are *sort of fly like birds*, *sort of nod at each other*, and *kind of forgot my birthday*.

By contrast, only 14% of occurrences of *somewhat* are pre-verbal. It occurs mostly before change-of-state verbs (especially where measurement is involved, e.g. *increase* and *decrease*). This item also frequently modifies such predicates post-verbally. There are also rare occurrences of *rather* as a degree modifier that are pre-verbal, mostly modifying verbs of disposition or preference, as in *I rather like ...* or *I rather doubt ...*. In short, *somewhat* and *rather* only modify verbs that have some scalar component to their meanings. But *pretty* and *fairly* never modify verbs on their M-modifier readings (though we find pre-verbal occurrences of *fairly* on its manner reading, which is synonymous with *justly*).

A small proportion of the tokens of some M-modifiers involve modification of prepositions or prepositional phrases. This accounts for 7% of the tokens for *sort of*, 8% for *somewhat* and 9% for *kind of*. Although all three occur as PP modifiers, there is a difference in interpretation between *somewhat* on the one hand and *sort of* and *kind of* on the other. In the COCA example in (6a), the M-modifier indicates vagueness about the geometric configuration, suggesting that the speaker's hands are roughly or approximately but not directly above their shoulders. We could substitute *sort of* here and the meaning would be similar. But if we use *somewhat* in the same position, the meaning shifts. (6b) indicates vagueness about the size of the spatial interval between hands and shoulders while the geometric configuration is unmodified (the hands are directly above the shoulders). Finally, (6c) illustrates that *pretty*, *fairly* and *rather* cannot directly precede prepositions; instead, a gradable adverb such as *far* or *much* must be inserted.

- (6) a. If you could see my hand, it's kind of above my shoulders.
 b. If you could see my hand, it's somewhat above my shoulders.
 c. ... it's pretty/fairly/rather *(much/far) above my shoulders.

The syntactic distribution observed for M-modifiers in COCA is summarized in Figure 1.

	<i>pretty</i>	<i>fairly</i>	<i>rather</i>	<i>somewhat</i>	<i>sort of</i>	<i>kind of</i>
Adjective/Adv. (positive form)	YES	YES	YES	YES	YES	YES
(comparative)	NO	NO	Rare	YES	Rare	Rare
Verb	NO	Rare	Restricted	Restricted	YES	YES
Spatial Preposition	NO	NO	NO	YES	YES	YES
Determiner Phrase	NO	NO	YES	YES (with of)	YES	YES

Figure 1: Syntactic distribution of M-modifiers in COCA

Overall, the corpus data reveal that there is a syntactic divide between *pretty* and *fairly*, which must directly combine with either an adjective or an adverb, and *sort of* and *kind of*, which may combine with any predicate although they only rarely modify comparative adjectives or

adverbs. Between these extremes are *somewhat* and *rather*, which each have their own syntactic profile: *somewhat* is distinguished by its ability to combine with comparatives, change-of-state verbs and spatial prepositions; *rather* is distinguished by its ability to precede the determiner in a noun phrase, and to serve as a degree modifier of a verb of preference or disposition.

2.2. Gradability and scale type

Gradable adjectives can be divided into different classes based on scale structure, which has been shown to affect the truth conditions of their positive forms, as well as the types of modifiers with which they may combine (Kennedy and McNally, 2005). Interactions between M-modifiers and four different classes of gradable adjectives were investigated by tallying and comparing their co-occurrence with sets of representative adjectives. The set for relative gradable adjectives with open scales included *big*, *cheap*, *deep*, *fat*, *long*, *rich*, *strong* and their antonyms. The set representing lower closed scales included *bent*, *bumpy*, *crooked*, *dangerous*, *dirty*, *impure*, *incomplete* and others, while the upper closed scale set included their antonyms. Adjectives with totally closed scales were represented by *open*, *closed*, *full*, *empty*, *opaque*, and *transparent*. A set of non-gradable adjectives was included as well, including *dead*, *alive*, *existing*, *extinct*, *pregnant* and a few others.

The raw number of co-occurrences reflects differences in overall frequency of the M-modifiers as well as the differences in the number of adjectives in each set and their frequency. To facilitate comparison, therefore, an index was calculated as follows. First, for each M-modifier, the number of co-occurrences with members of each scale type set was converted to a percentage of the total number of co-occurrences of that modifier with members of all five sets. Then total number of co-occurrences for all M-modifiers with members of each scale-type-set was converted to a percentage of the total number of co-occurrences of all M-modifiers with members of all scale-type-sets. Finally, the percentage in each cell for each M-modifier was divided by the percentage for all M-modifiers. These indices are shown in Figure 2. Numbers below 1.00 indicate lower than average rates of co-occurrence, and numbers above 1.00 represent higher than average rates of co-occurrence.

Index	<i>pretty</i>	<i>fairly</i>	<i>rather</i>	<i>somewhat</i>	<i>sort of</i>	<i>kind of</i>
Non-Gradable	0.58	0.53	0.38	1.58	12.45	4.01
Open Scale	1.00	0.98	1.24	0.75	0.53	0.64
Lower Closed	1.26	0.17	0.56	2.72	1.39	3.01
Upper Closed	0.93	1.60	0.37	0.81	0.85	0.73
Totally Closed	0.89	0.68	0.64	2.25	3.82	2.88

Figure 2: Indices of co-occurrence

Degree modifiers typically do not co-occur with non-gradable adjectives such as *dead/alive* unless these have gradable interpretations (e.g. *feeling (very) alive*). The indices in Figure 2 show that *sort of* and *kind of* appear with this class much more frequently than the other M-modifiers. Furthermore, these modifiers don't coerce gradable interpretations when they appear in these contexts. For example, in (7) the speaker is addressing a character who is allegedly dead, at their own funeral, but the statement is not asserting that the addressee is partially dead.

Instead, it asserts that there is some property the addressee has that similar, or related to the property of being dead—enough so that whatever *this* refers to is none of their concern.

(7) Well, you're sort of dead, so this doesn't really concern you.

As for scale type, there are a few data points that stand out. Most dramatically, Figure 2 shows that *fairly* occurs very infrequently with minimum standard adjectives (i.e. those with lower closed scales), while it exhibits a strong preference for maximum standard adjectives (upper closed scales). Conversely, *pretty* exhibits a preference for minimum standard adjectives and *rather* exhibits a preference for open scale adjectives. *Sort of* and *kind of* have low co-occurrence indices for open scale adjectives. Finally, *somewhat* occurs especially frequently with adjectives whose scales are either totally closed or lower closed.

2.3. Interpretive effects

Some further interpretive distinctions can be detected between the six M-modifiers. Although it is not possible to get at these by means of corpus data, some simple linguistic tests bring these variations to light. First, there are subtle differences in strength between the M-modifiers. The sequence of statements below is only felicitous if the second sentence asserts a higher degree of the property than the first, as with the Moderate and High-degree modifiers in (8a). If the modifiers are reversed, the sequence is infelicitous, as in (8b).

- (8) a. It was pretty good. In fact, it was very good indeed!
b. #It was very good. In fact it was pretty good indeed!

Based on this diagnostic, there is a clear difference in strength between *fairly* and *somewhat*, which suggest lower degree ranges, and *pretty* and *rather*, which suggest higher ranges.

- (9) a. It was fairly/somewhat good. In fact, it was pretty/rather good indeed!
b. #It was pretty/rather good. In fact, it was fairly/somewhat good indeed!

Sort of and *kind of* are also among the weaker M-modifiers according to this diagnostic. Strength ordering between *rather* and *pretty* or between *somewhat*, *fairly*, *sort of* and *kind of* are not clear.

In addition to their greater strength relative to other M-modifiers, *pretty* and *rather* seem to interact with the common ground in terms of the expectations of the speaker. The use of these M-modifiers is often felicitous in the context of contradicted expectations, as illustrated by the corpus examples in (10):

- (10) a. The CIA, actually, overseas did a rather good job in 1999...
b. I thought it would be weird and boring. It was pretty interesting though.

This sense of contradiction or surprise can even be evoked by the use of the modifiers themselves in the absence of overt contradiction in the discourse. Consider the following scenario.

- (11) Alice and Beate have just come from seeing a movie together.
 Alice: What did you think?
 Beate: I thought it was rather good.

In addition to being a relatively positive endorsement of the film, Beate’s statement suggests that she herself didn’t expect it to be that good. This quality of being surprised may also be conveyed with *pretty*, but is not present with *fairly*, *somewhat*, *sort of* or *kind of*.

2.4. Overlap with positive form

Additional linguistic diagnostics indicate that M-modified adjectives are not semantically distinct from the unmodified (positive) form of the adjective. First, it is not felicitous to assert the positive form and deny the M-modified form:

- (12) The house is large. #But I am not prepared to say it is pretty/fairly/rather/somewhat/sorta /kinda large.

Conversely, once the unmodified form of the adjective is denied, it is generally incongruous to assert the M-modified form, per (13). But here, judgments vary according to the M-modifier and the class of adjective modified. In (13), *kind / sort of* strike us as less bad than the other M-modifiers, and when the relative adjective *large* is replaced by a maximum-standard adjective such as *straight* (14), these two as well as *fairly* and *pretty* are quite acceptable in this frame.

- (13) The house isn’t large, but it is #pretty/#fairly/#rather/#somewhat/?sorta/?kinda large.
 (14) The pipe isn’t straight, but it is pretty/fairly/#rather/#somewhat/sorta/kinda straight.

The data reported above show that despite their core similarity of meaning, M-modifiers in English differ from each other in significant ways. They have distinct syntactic distributions, combine at very different rates with various adjective classes, and show subtle interpretive differences. Therefore, modeling their semantics calls for a heterogeneous approach.

3. Semantics of M-modifiers

In this section we propose distinct lexical entries which can account for the distributional and semantic characteristics of the the six M-modifiers described in the previous section.

3.1. Preliminaries

Focusing initially on the pre-adjectival occurrence of M-modifiers, we take gradable adjectives to express relations between individuals and degrees:

- (15) $[[large]]^{w,i} = \lambda d \lambda x. SIZE_w(x) \geq d$

As a formal means of representing the vagueness of the positive form of (some) gradable adjectives—and underspecification of meaning more generally—we follow Krifka (2012) in

taking expressions of language to be interpreted relative to a pair of indices $\langle w, i \rangle$, where w is a world index and i an interpretation index. That is, the usual notion of a world parameter is decomposed into world and interpretation components. If $\llbracket \alpha \rrbracket^{w,i} \neq \llbracket \alpha \rrbracket^{w',i}$, this means that there is some factual difference in the state of affairs at $\langle w, i \rangle$ and $\langle w', i \rangle$. If $\llbracket \alpha \rrbracket^{w,i} \neq \llbracket \alpha \rrbracket^{w,i'}$, the difference lies instead in how expressions of the language are interpreted at indices $\langle w, i \rangle$ and $\langle w, i' \rangle$. Just as we can assume a set W of possible worlds, so too can we posit a set I constituting available interpretations. The common ground is then modeled as a pair $C = \langle W, I \rangle$.

We analyze the positive form of the adjective via Rett's (2008) null *EVAL* morpheme, which introduces a standard function *std* that specifies the set of degrees that satisfy the contextually relevant standard. We modify this by relativizing *std* explicitly to the interpretation index i .

$$(16) \quad \llbracket EVAL \rrbracket^{w,i} = \lambda A_{\langle d, \langle e, t \rangle \rangle} \lambda d \lambda x. A_w(x)(d) \wedge std_i(A)(d)$$

For relative gradable adjectives such as *large* and *expensive*, std_i returns the set of degrees greater than some contextual threshold determined by i , with different choices of i corresponding to different scalar locations for this threshold or lower bound. For absolute maximum-standard adjectives such as *clean* and *smooth*, we assume that by default, for all $i \in I$, std_i returns the set containing only the scalar maximum point; likewise, for minimum-standard adjectives such as *dirty* and *rough*, std_i by default returns the set of all degrees greater than the scalar minimum. But as will be seen below, these defaults can be overridden.

A fuller derivation is thus the following, where the degree argument introduced by *EVAL* is existentially bound:

$$(17) \quad \llbracket EVAL \text{ large} \rrbracket^{w,i} = \lambda x. \exists d [SIZE_w(x) \geq d \wedge std_i(\text{large})(d)]$$

$$(18) \quad \begin{array}{l} \text{The house is large.} \\ \exists d [SIZE_w(\text{house}) \geq d \wedge std_i(\text{large})(d)] \\ \text{'There is some degree } d \text{ that exceeds the threshold for 'large' set at } i \text{ (i.e. that counts} \\ \text{as 'large' at } i \text{) and the house is at least } d \text{ large in } w \text{' } \end{array}$$

3.2. Semantics of *fairly* and *pretty*

The distribution of *fairly* and *pretty*—which must directly precede a gradable adjective or adverb—suggests they each take something of type $\langle d, \langle e, t \rangle \rangle$ as their argument. We propose that they introduce a function equivalent to *EVAL*, picking out a set of degrees that represent the standard in the context. Additionally, however, these modifiers act on the index i with respect to which *EVAL* is interpreted. Consistent with its diachronic origin (“legitimately”, “suitably”), *fairly* establishes a loose interpretation for the adjective by introducing a function equivalent to *EVAL* at **some** accessible index $i' \in I$. In this way, it explicitly allows for the least strict standard that can legitimately be applied to the interpretation of the adjective.

$$(19) \quad \llbracket fairly \rrbracket^{w,i} = \lambda A_{\langle d, \langle e, t \rangle \rangle} \lambda d \lambda x. \exists i' \in I [A_w(x)(d) \wedge std_{i'}(A)(d)]$$

$$(20) \quad \begin{array}{l} \text{The house is fairly large.} \\ \exists d \exists i' \in I [SIZE_w(\text{house}) \geq d \wedge std_{i'}(\text{large})(d)] \end{array}$$

‘There is some degree d that counts as ‘large’ at some available interpretation $i' \in I$ and the house is at least d large in w .’

Recall that *fairly* is common with maximum-standard adjectives such as *clean*, where it has a weakening effect, but rare with minimum-standard adjectives such as *dirty*. We derive this pattern as follows. For a maximum-standard adjective, the default is that for all $i \in I$, the standard function std_i returns just the scalar maximum. With this, the existential quantification introduced by *fairly* is trivial, which forces a widening of the set I to include interpretations i that establish a less strict standard. Existential quantification over this widened set results in a loosened interpretation. With a minimum-standard adjective, existential quantification is likewise trivial, because by default (for all $i \in I$) std_i returns the set of all degrees above the scalar minimum. But in this case widening of I has no effect, because it can only introduce stricter standards for the adjective; existential quantification still picks out the original interpretation.

We propose a similar semantics for *pretty*, but whereas *fairly* specifies that *EVAL* is interpreted at a “legitimate” interpretive index, *pretty* establishes a “good” index, consistent with its diachronic origin as a positive evaluative adjective (cf. Nouwen 2020 on the relationship between positive evaluation and moderate degree). This explains its tendency to suggest a stronger interpretation than *fairly*. A possible formalization of the notion of a “good” interpretation is outlined below in our discussion of *rather*. With absolute gradable adjectives, *pretty*, like *fairly*, forces the widening of the set of available interpretations I . It is when *pretty* combines with a minimum-standard adjective that this can have a semantic effect, since a good interpretation might be stronger than the default one; hence the greater compatibility of *pretty* with this class.

3.3. Semantics of *rather*

Unlike *pretty* and *fairly*, *rather* can modify certain verbs, and can modify a gradable adjective (or noun) at a distance. This suggests that it takes a property of type $\langle e, t \rangle$ rather than $\langle d, \langle e, t \rangle \rangle$ as argument. When it directly precedes an adjective, we assume the adjective to have its positive form, derived via combination with *EVAL* and existential binding of the degree argument.

The sense of contradiction that seems intrinsic to *rather* is captured through a presupposition: *rather* requires that the common ground C contain both world-interpretation pairs on which P holds, and pairs on which $\neg P$ holds. Regarding its asserted content, we assume an ordering source g on available interpretations $i \in I$. In this, we follow Umbach and Solt (2020), who invoke this possibility in the analysis of the metalinguistic use of German *eh*er ‘more, rather’, which like *rather* derives from a temporal comparative. In the case of the M-modifier *rather*, we take it that a comparison between P and $\neg P$ has been grammaticalized: *rather* asserts that, relative to the ordering source g , P obtains on ‘better’ interpretations than $\neg P$.

$$(21) \quad \llbracket \textit{rather} \rrbracket^{w,i} = \lambda P_{\langle e,t \rangle} \lambda x. \forall i' \in I [\neg P_{i',w}(x) \rightarrow \exists i'' \in I [P_{i'',w}(x) \wedge i'' \succ_g i']]$$

defined if $\exists \langle w, i \rangle, \langle w', i' \rangle \in C$ such that $\llbracket \neg P(x) \rrbracket^{w,i} = 1 \wedge \llbracket P(x) \rrbracket^{w',i'} = 1$

$$(22) \quad \text{The cat is rather ugly.}$$

$$\forall i \in I [\neg \exists d [UGLY_w(cat) \geq d \wedge std_{i'}(ugly)(d)]]$$

$$\rightarrow \exists i'' \in I [\exists d [UGLY_w(cat) \geq d \wedge std_{i''}(ugly)(d) \wedge i'' \succ_g i']]$$

‘There are better interpretations on which the cat is ugly than on which she is not ugly.’

At this point we should say something about the ‘moderate degree’ meaning that these items share. None of the lexical entries proposed so far (for *fairly*, *pretty* and *rather*) encode an intermediate range on the scale directly. Instead, like the bare adjectives, they only introduce a lower bound; sentences containing these items are also true when a higher value obtains. We propose that higher values are excluded via implicatures generated by competition with modifiers expressing a higher degree. For example, *fairly large* implicates *not very large*. The same holds for the other modifiers (*somewhat*, *kind of*, *sort of*) discussed in the remainder of this section. The formal mechanism we assume is introduced in Section 4.

3.4. Semantics of *somewhat*

Recall that *somewhat* combines freely with comparative adjectives, as well as with spatial prepositions and such verbs as *increase* and *decrease*. What these have in common is that they all make reference to some kind of interval or extent which may be modified by a measure phrase (*one inch taller*, *one inch above*, *increase one percent*). We also note the presence of the indefinite morpheme *some* as a component of this M-modifier. Based on these characteristics, we propose that *somewhat* is a degree quantifier that introduces existential quantification over a scalar interval. This may be the differential interval between the subject of the comparative and the standard, or it may be the interval supplied by *EVAL* as illustrated in (24).

$$(23) \quad \llbracket \textit{somewhat} \rrbracket^{w,i} = \lambda D_{\langle d,t \rangle} . \exists D' \neq \emptyset [D' \subset D]$$

$$(24) \quad \begin{aligned} &\text{The room is somewhat dirty.} \\ &\llbracket \textit{somewhat} \rrbracket^{w,i} (\lambda d . \textit{the room is } d\text{-EVAL}_i \textit{ dirty}) \\ &= \exists D' \neq \emptyset [D' \subset \lambda d . \textit{DIRTY}_w(\textit{room}) \geq d \wedge \textit{std}_i(\textit{dirty})(d)] \\ &\text{‘The room is EVAL dirty to some non-zero extent.’} \end{aligned}$$

Unlike *pretty*, *fairly* and *rather*, then, *somewhat* on its pre-adjectival use does not manipulate the interpretation index at which the positive form of the adjective is evaluated. Instead, it starts from the prevailing index and expresses its meaning in terms of the positive form at that index. Although compositionally it operates as a degree quantifier over a set of degrees formed by lambda abstraction, the interpretation that results is equivalent to that of the bare adjective; that is, *somewhat dirty* is semantically equivalent to *dirty*.

3.5. Semantics of *sort of* and *kind of*

We approach the semantics of *kind of* and *sort of* and their reduced forms *kinda*, *sorta* by considering the taxonomic nouns *kind* and *sort* that are their diachronic sources. *Kind* is typically analyzed as introducing a subkind relation. To say that *a beagle is a kind of dog* is to say that the kind BEAGLE is a subkind of the kind DOG. A similar analysis is plausible also for *sort*.

For the M-modifiers this is not quite what we need. To be *kind/sort of free* is not to have a property that is a sub-variety of the property of being free, but rather to have a property similar in some relevant sense to being free. We thus propose that *sort of* / *kind of* operate by introducing a property that on its kind interpretation is a subkind of the same kind that FREE is:

$$(25) \quad \llbracket \textit{kind/sort of} \rrbracket^{w,i} = \lambda P \lambda \alpha \exists P' [\text{SUBKIND}(\cap P')(k_i) \wedge \text{SUBKIND}(\cap P)(k_i) \wedge P'_w(\alpha)]$$

- (26) The concert was kind of free.
 $\exists P'[\text{SUBKIND}(\cap P')(k_i) \wedge \text{SUBKIND}(\text{FREE})(k_i) \wedge P'_w(\text{concert})]$

The inferred superkind k_i in (25) can be seen as an *ad hoc* kind (Umbach and Gust, 2014); which superkind is inferred is contextually determined, which we model as dependence on $i \in I$. Its subkinds inherit essential properties from it; thus something that is *kind of free* instantiates a kind that shares some essential properties with the kind FREE. Here we note a connection to Anderson's (2016) analysis of *sorta* with non-gradable expressions, according to which it introduces a predicate similar to the modified predicate at some level of precision; on our account, similarity derives from kind resemblance.

With the entry in (25), *kind of* and *sort of* can combine with predicates of all varieties, including those that are not vague or gradable. This is because their effect does not depend on the presence of a degree argument, nor any flexibility of interpretation of the modified expression; rather, such flexibility is introduced by *kind / sort of* themselves via the inferred kind relationship.

3.6. Summary

To summarize, M-modifiers differ in their semantic type, and achieve their effects via different compositional means: *fairly*, *pretty* and *rather* manipulate the interpretation of the positive form; *somewhat* is a degree quantifier that on the adjectival use is equivalent to the unmodified adjective; and *kind/sort of* function via kind resemblance. As noted above, in none of these cases is the 'not extreme' component of their meaning semantically encoded. Rather, we take this to arise via implicature: *fairly large* implicates *not very large*; *somewhat taller* implicates *not a lot taller*; *kind of free* implicates *not really free*; and so forth. In the next section we formalize this insight, and demonstrate how it accounts for polarity sensitivity.

4. Explaining polarity sensitivity

In the preceding two sections it was seen that M-modifiers differ significantly in their distribution and interpretation, indicating that they require quite distinct semantic analyses. Despite this, all members of the class are positive polarity items. This suggests that their polarity sensitivity cannot derive from the specific semantics of any individual item, but rather must relate to the more basic 'moderate degree' meaning that they all share.

In intuitive terms, we propose that the polarity sensitivity of M-modifiers derives from the fact that the modified forms are not semantically distinct (in a way to be made precise) from the corresponding unmodified forms. In positive contexts, they are nonetheless more informative, because they have implicatures that the unmodified forms lack. But in negative sentences there is no such rescuing implicature, and thus the modified form is blocked by its simpler alternative. We implement this in an alternative-based approach to polarity sensitivity (e.g. Krifka, 1995; Chierchia, 2013; Spector, 2014), adopting a pragmatic framework based on Katzir (2007), which in Solt (2018a, b) was applied to other cases of attenuating polarity items.

4.1. Pragmatic framework

The heart of the framework we assume is a pragmatic rule of assertion, which specifies that a sentence ϕ should not be used if there is a better alternative ψ that is weakly assertable. By

‘weakly assertable’ we mean that the speaker believes the sentence to be true and relevant. The ‘better than’ relation is understood via two clauses that operate in sequence. First, ψ is better than ϕ if it is more informative than ϕ . Secondly, ψ is better than ϕ if it is simpler and—after accounting for the effect of the first clause—no different in informativity from ϕ .

- (27) **Rule of Assertion (RoA)** Do not use a sentence ϕ if there is a ‘better’ alternative ψ that is weakly assertable, where ψ is better than ϕ ($\psi \succ \phi$) iff:
- i) ψ is more informative than ϕ ($\psi \succ_{INF} \phi$); or
 - ii) ψ is simpler than ϕ ($\psi \succ_{SIMP} \phi$) and—after accounting for implicatures derived via (i)—not distinct in informativity from ϕ ($\psi \sim_{INF} \phi$)

Clause (i) of (27) is the familiar sort of principle or rule invoked to derive scalar implicatures. Clause (ii)—which is novel to the present approach—is responsible for manner implicatures (see e.g. Rett, 2020) and, as we will see below, polarity-based restrictions.

Following Katzir (2007), we assume a structural view of alternatives, according to which the relevant alternatives to a linguistic expression are those derived by deleting constituents from the syntactic structure or replacing constituents with elements of the same category. An important consequence of this definition is that there is an asymmetry in the alternatives available to modified and unmodified forms: modified expressions have the corresponding unmodified expressions as alternatives, as well as those formed by replacing the modifier with a different modifier; but unmodified expressions do not have modified forms as alternatives.

Relative simplicity can then be defined in structural terms as follows:

- (28) **Relative simplicity:** $\phi \succ_{SIMP} \psi$ iff ϕ can be derived from ψ by substitution and/or deletion but not vice versa.

A consequence is that when simplicity plays a role in the choice between alternatives, unmodified forms necessarily have an advantage over modified ones.

Relative informativity requires some further discussion. For the linguistic expressions of interest here, we need a definition of ‘more informative’ that takes into account the effects of vagueness or underspecification of meaning. Otherwise, it might be the case that on one choice of interpretation i , ϕ asymmetrically entails ψ , but on another equally legitimate choice i' , the two are equivalent, or the entailment relation is even reversed. To avoid this, we assume a strict definition of relative informativity, according to which ϕ is more informative than ψ if and only if a relation of unidirectional entailment obtains regardless of how any underspecification of meaning in ϕ and/or ψ is resolved. That is, there must be some state of affairs such that regardless which interpretation of ϕ and ψ we choose, ψ is true and ϕ is false. Formally:

- (29) **Relative informativity:** $\phi \succ_{INF} \psi$ iff a relation of unidirectional entailment obtains *regardless of how any underspecification in meaning of ϕ and/or ψ is resolved.*
- a. $\phi \succeq_{INF} \psi$ iff $\forall i, w[\phi_{i,w} \rightarrow \exists i' \psi_{i',w}]$
 - b. $\phi \succ_{INF} \psi$ iff $\phi \succeq_{INF} \psi$ and $\neg \psi \succeq_{INF} \phi$
 - c. $\phi \sim_{INF} \psi$ iff $\phi \succeq_{INF} \psi$ and $\psi \succeq_{INF} \phi$

Crucially, with this strict definition of relative informativity, M-modified forms are not distinct in informativity from the corresponding unmodified forms. This was observed empirically in (12)-(13), which demonstrate that it is infelicitous to assert the modified adjective while denying the unmodified one, and vice versa (putting aside for now the apparent counterexamples in (14)). And it follows from the lexical entries proposed in Section 3. For example, to be *large* at index i is to have a size that counts as large at i , where i is constrained to be in the set of available interpretations I . To be *fairly large* is to be large at some index $i' \in I$; but this is equivalent to a possible interpretation of bare *large*. Even more clearly, to be *dirty* is (by default) to have a non-zero degree of dirtiness. To be *somewhat dirty* is to be dirty to a non-zero extent; these are equivalent. And to be *kind of free* is to have a property related via kind resemblance to *free*; but one such property is *free* itself. We return below to some trickier cases, but first we show how this property of M-modifiers leads to their PPI status.

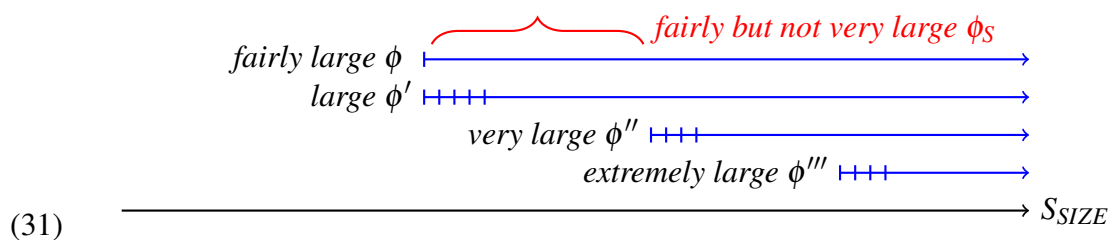
4.2. (*Not) fairly large

We demonstrate how the system works using *fairly* in combination with the relative gradable adjective *large* as an example. Consider the sentence *the house is fairly large*. As alternatives it has the one formed by deleting *fairly*, as well as those formed by replacing *fairly* with other degree modifiers such as *very* or *extremely*:

(30) ϕ = The house is fairly large.

$$ALT(\phi) = \left\{ \begin{array}{l} \phi' = \text{The house is large.} \\ \phi'' = \text{The house is very large.} \\ \phi''' = \text{The house is extremely large.} \\ \dots \end{array} \right\}$$

As an aid to visualizing the interpretations of the *fairly* sentence and its alternatives, the figure below depicts the scalar ranges corresponding to the adjective phrases in each (in blue):



Per (17)-(18), the alternative ϕ' with bare *large* specifies that the size of the house falls within a lower-bounded standard range $std_i(\text{large})$ on the scale of sizes. The precise location of the lower bound or threshold differs depending on the choice of i within the set of available interpretations I (indicated by the vertical hashes in the figure). Per (19), *fairly* introduces existential quantification over I and thus over possible thresholds for *large*, such that the original *fairly* sentence ϕ has an interpretation equivalent to that of the bare *large* alternative on its least strict interpretation. Finally, we assume that *very large* introduces a threshold that likewise depends on the choice of $i \in I$, but which regardless of interpretation is higher than that for *fairly large*; *extremely large* introduces a similarly vague but even higher threshold.

As the first step in applying the Rule of Assertion (27), we compare the original sentence $\phi =$ *the house is fairly large* and its alternatives with respect to informativity. On the definition of informativity in (29), ϕ'' (*very large*) is more informative than the original ϕ (*fairly large*), because for a world w at which the size of the house is just slightly above the threshold established by *fairly*, ϕ is true (regardless of i) but ϕ'' is false (regardless of i). By the first clause of the Rule of Assertion RoA(i), ϕ'' emerges as the better alternative, and thus the assertion of *fairly large* gives rise to the implicature that *very large* is not assertable.

$$(32) \quad \phi'' \text{ (very large)} \succ \phi \text{ (fairly large)} \\ \therefore \text{The house is fairly large} \rightsquigarrow \neg \text{The house is very large}$$

At this stage we also compute the corresponding implicatures of the alternatives to the original *fairly* sentence. By the same logic as above, ϕ'' (*very large*) has ϕ''' (*extremely large*) as a more informative and therefore better alternative, and thus the assertion of the former has the implicature that the latter is not assertable. But crucially, the bare alternative ϕ' (*large*) does not itself have modified forms as alternatives, and thus has no implicatures.

As the second stage in the application of the RoA, we start with the original *fairly* sentence on its implicature-strengthened interpretation (indicated in red in the figure) and compare it with its (potentially strengthened) alternatives with respect to simplicity and again informativity.

The bare *large* sentence ϕ' has an advantage in simplicity over the original *fairly* sentence ϕ , since the former can be derived via deletion from the latter, but not vice versa. But on the strengthened interpretation of the original sentence, notated here as ϕ_S , it is more informative (in the sense of (29)) than its unmodified alternative ϕ' . This is because for any world w at which *very large* obtains regardless of $i \in I$, ϕ' is true but ϕ_S is false.

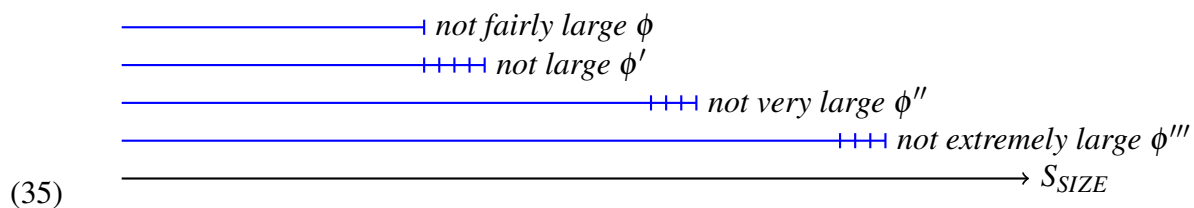
$$(33) \quad \begin{array}{l} \text{a. } \phi' \succ_{SIMP} \phi_S \\ \text{b. } \phi_S \succ_{INF} \phi' \end{array}$$

With this pattern of relative informativity and simplicity, the second clause of the Rule of Assertion RoA(ii) is not triggered, since this governs the choice between alternatives equivalent in informativity. No ‘better than’ relation obtains between these two alternatives; either may be felicitously uttered, and no manner implicatures arise.

Let us now observe what happens with the corresponding negative sentence **the house is not fairly large*, whose unacceptability we seek to derive. In (34) its alternatives are shown, and in (35) the scalar ranges corresponding to interpretation of each are depicted:

$$(34) \quad \phi = \text{*The house is not fairly large.}$$

$$ALT(\phi) = \left\{ \begin{array}{l} \phi' = \text{The house is not large.} \\ \phi'' = \text{The house is not very large.} \\ \phi''' = \text{The house is not extremely large.} \\ \dots \end{array} \right\}$$



As can be seen from the above figure, none of these alternatives is more informative than the original *not fairly large* sentence. Thus, in contrast to the case of the positive sentence, with respect to clause (i) of the Rule of Assertion there are no ‘better’ alternatives, and therefore at this stage no implicatures are generated.

Turning to the second stage of application of the RoA, the bare *not large* alternative ϕ' again has an advantage in simplicity over the original *not fairly large* sentence ϕ . But in this case, these two alternatives are, on the definition adopted here, equivalent in informativity. This is the case on their semantic interpretations: as seen in the figure, there can be no world on which *not fairly large* obtains regardless of $i \in I$ but *not large* does not, nor one in which the reverse obtains, because the interpretation of *not fairly large* is one of the available interpretations of *not large*. And in contrast to the situation with the positive sentences, there is no scalar implicature that would break this equivalence. By RoA(ii), the unmodified alternative is calculated to be ‘better’ than the original sentence:

- (36)
- a. $\phi' \succ_{SIMP} \phi$
 - b. $\phi \sim_{INF} \phi'$
 - c. $\therefore \phi' \succ \phi$

The original *not fairly* sentence should therefore not be used if this alternative is assertable; put differently, the assertion of the original sentence would give rise to the implicature that its simpler alternative is not assertable. But as seen in the figure, the available interpretations of the unmodified alternative are either equivalent to or weaker than that of the original *not fairly* sentence. Thus the implicature would contradict the asserted content; that is, ‘not fairly large but NOT not large’ is a contradiction. We take this to be the source of the unacceptability of the M-modifier *fairly* under negation.

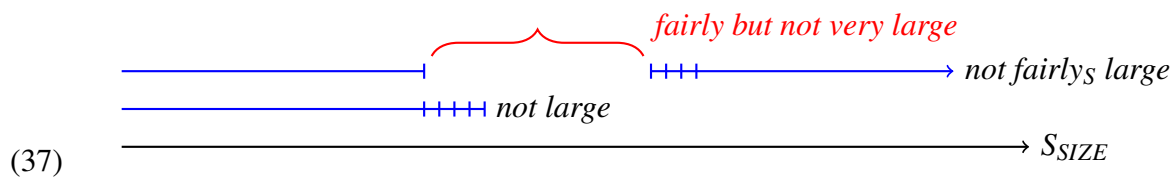
To summarize, we derive the PPI status of M-modifiers as the result of blocking by a simpler alternative in negative sentences, or put differently, as the result of a contradictory manner implicature in such sentences. In positive sentences, by contrast, a scalar implicature available to the M-modified form breaks its formal equivalence with its simpler alternative. As a result, no potentially problematic simplicity-based implicature is derived, and the M-modified form may felicitously occur.

4.3. Issues and extensions

In concluding this section, we briefly consider some potential issues with the account developed above, as well as questions that arise when extending the analysis beyond *fairly + large*.

First, in the framework we have adopted, alternative comparison and implicature generation occur at the sentential level, after semantic composition is complete. There is however another

possibility that must be considered. Suppose that in *not fairly large*, the scalar implicature from *fairly* to *not very* is calculated in the scope of negation, perhaps by means of a grammaticalized exhaustification operator (e.g. Spector, 2014). The negation of the implicature-strengthened interpretation of *fairly large* would then not be equivalent to the simpler *not large*: as seen in the figure below, the former describes scalar values either below or above the range of ‘fairly but not very large’, whereas the latter describes values less than what counts as large. Rule of Assertion (ii) should therefore not apply, and there should be no blocking.



We propose that this derivation is in fact ruled out by a constraint against non-convex meanings in discourse. In mathematics, a subset of a space is convex iff for any two points in the subset, all points between them are also in the subset. Gärdenfors (2004) introduced convexity into semantic theory as a constraint on possible lexical meanings. More recently, violation of convexity has been invoked to account also for facts at the level of compositionally derived meanings in discourse, including the infelicity of negated bare numerals in neutral discourse contexts (Solt and Waldon, 2019) and the absence of certain readings that could in principle be derived via exhaustification (Enguehard and Chemla, 2021). Our claim is that a convexity constraint also blocks an embedded implicature in an example such as *the house is not fairly large*. The interpretation that would be derived via such an implicature is non-convex, in that the sentence is true in two types of situations or states of affairs (i.e. sizes of the house), but false on states of affairs (sizes) between them. Its derivation is therefore blocked. Thus when the pragmatic framework introduced above is augmented by a constraint against non-convex meanings, there is no route by which a negated M-modifier such as *fairly* can be rescued.

As a second potential issue, our analysis rests on the unmodified form of an adjective lacking the scalar implicatures that M-modified forms have. We have solid theoretical grounds to say that unmodified forms do not have modified forms as alternatives, and thus do not give rise to scalar implicatures relative to such forms. But we have not yet considered alternatives that arise by replacing the adjective itself with another adjective. For example, *large* plausibly has *enormous* and *gigantic* as alternatives, so we might expect that the assertion of *large* would come with the implicature that *enormous* etc. do not obtain.

It turns out that allowing this possibility does not affect the account presented above. We note first that experimental work has shown that implicatures of this sort involving pairs of gradable adjectives are much less frequent than what is observed in classic cases such as the implicature from *some* to *not all* (see e.g. van Tiel et al., 2016). But even if the implicature is generated, it seems to be a general pattern that the resulting interpretation is broader than that derivable via scalar implicature involving modified forms. For example, *enormous* is intuitively larger than *very large*, and as such *large but not enormous* describes a broader scalar range than *fairly but not very large*. The M-modified form is thus still more informative than its unmodified counterpart, and the reasoning outlined above still goes through.

Finally, our working example above was *fairly* in combination with the relative gradable adjective *large*, where the interpretation of the M-modified form is equivalent to the weakest available interpretation of the unmodified form. But as discussed above, certain M-modifiers (*fairly*, *pretty*, *sort/kind of*) can have a weakening effect, especially in combination with a maximum-standard adjective (see (14)). If the M-modified form is semantically weaker than its unmodified counterpart, then its negation is stronger than that of the unmodified form; if this is the case, then the blocking account developed above no longer goes through.

While we think there is more work to be done here, we would like to suggest that even in these examples, the modified and unmodified alternatives are informativity-equivalent in the sense of (29). In Section 3.2 we argued that for *fairly* and *pretty*, the weakening effect comes from a forced widening of the set of available interpretations I ; but such widening also affects the possible interpretations of the bare adjective, and thus does not change the relative informativity of the two. *Kind of/sort of* are trickier, in that they weaken semantically by introducing properties related to but distinct from that denoted by the unmodified form. But which properties are introduced this way is context-dependent; arguably, there is no property that always (regardless of $i \in I$) counts as *kind of free* other than *free* itself, and therefore no entity that can always be called *kind of free* other than those that are in the extension of *free*. Informativity-equivalence again obtains. In fact, we believe this to be the unifying characteristic of M-modifiers, namely that they neither formally strengthen (in the sense of (29)) nor formally weaken the interpretation of the unmodified form.

5. Conclusions

In this paper, we have presented a formal semantics for members of the lesser-studied class of M-modifiers, and developed an account of their polarity sensitivity. In general terms, our findings demonstrate that there are multiple routes to (apparent) degree modification in natural language. They also provide evidence for additional sources of polarity sensitivity beyond those that have been applied to items such as *any* and *ever* (e.g. Chierchia 2013), involving notions of simplicity-based alternative comparison and vagueness as a factor in relative informativity. Taking these two areas of contribution together, this case study suggests that to explain polarity sensitivity in the domain of degree expressions, it is necessary to first understand the fine-grained scalar semantics of the items in question.

We see potential to extend this type of approach to other examples of attenuating polarity items in the degree domain and perhaps beyond. Particular cases of interest include high degree NPIs (e.g. *all that*) as well as modifiers with variable polarity sensitivity (e.g. *quite*, Romance ‘enough’ words). Also important will be to explore connections between the present approach and established theories of polarity sensitivity, an example being Spector’s (2014) theory of obligatory exhaustification, which like the present account links positive polarity status to the availability of a scalar implicature. Ultimately, some form of unification is to be desired.

References

- Anderson, C. (2016). *Intensification and attenuation across categories*. Ph. D. thesis, University of Michigan.
- Bolinger, D. (1972). *Degree Words*. The Hague: Mouton.

- Castroviejo, E. and B. Gehrke (2016). On evaluative intensification and positive polarity. Ms. University of the Basque Country (UPV/EHU) & CNRS-LLF / Paris Diderot.
- Chierchia, G. (2013). *Logic in Grammar: Polarity, Free Choice and Intervention*. Oxford: Oxford University Press.
- Davies, M. (2008). The Corpus of Contemporary American English (COCA): 560 million words, 1990-present. Available online at <http://corpus.byu.edu/coca/>.
- Enguehard, E. and E. Chemla (2021). Connectedness as a constraint on exhaustification. *Linguistics and Philosophy* 44, 79–112.
- Gärdenfors, P. (2004). *Conceptual Spaces: The Geometry of Thought*. Cambridge, MA: MIT Press.
- Israel, M. (2011). *The Grammar of Polarity: Pragmatics, Sensitivity, and the Logic of Scales*. Cambridge: Cambridge University Press.
- Ito, S. (2015). *Bias and prosody in Japanese negative polar questions*. Ph. D. thesis, Cornell.
- Katzip, R. (2007). Structurally-defined alternatives. *Linguistics and Philosophy* 30, 669–690.
- Kennedy, C. and L. McNally (2005). Scale structure, degree modification and the semantics of gradable predicates. *Language* 81, 345–381.
- Krifka, M. (1995). The semantics and pragmatics of polarity items. *Linguistic Analysis* 25, 1–49.
- Krifka, M. (2012). Definitional generics. In A. Mari, C. Beyssade, and F. D. Prete (Eds.), *Genericity*, pp. 372–389. Oxford: Oxford University Press.
- Nouwen, R. (2013). Best nogal aardige middenmoters: de semantiek van graadadverbia van het middenbereik. *Nederlandse Taalkunde* 18(2), 204–214.
- Nouwen, R. (2020). Evaluation, extent and Goldilocks. Ms., Utrecht University.
- Paradis, C. (1997). *Degree modifiers of adjectives in spoken British English*. Ph. D. thesis, Lund University.
- Quirk, R., S. Greenbaum, G. Leech, and J. Svartvik (1985). *A Comprehensive Grammar of the English Language*. New York: Longman.
- Rett, J. (2008). *Degree modification in natural language*. Ph. D. thesis, Rutgers University.
- Rett, J. (2020). Manner implicatures and how to spot them. *International Review of Pragmatics* 12(1), 44–79.
- Solt, S. (2018a). Approximators as a case study of attenuating polarity items. In S. Hucklebridge and M. Nelson (Eds.), *NELS 48: Proceedings of the 48th Annual Meeting of the North East Linguistic Society*, Volume 3, Amherst, MA, pp. 91–104. GLSA.
- Solt, S. (2018b). *Not much*: On the variable polarity sensitivity of ‘much’ words cross-linguistically. In *Sinn und Bedeutung* 23, Barcelona.
- Solt, S. and B. Waldon (2019). Numerals under negation: empirical findings. *Glossa* 4(1), 113.
- Spector, B. (2014). Global positive polarity items and obligatory exhaustivity. *Semantics and Pragmatics* 7(11), 1–61.
- Umbach, C. and H. Gust (2014). Similarity demonstratives. *Lingua* 149, 74–93.
- Umbach, C. and S. Solt (2020). Comparison via ‘eher’. Ms. Leibniz-Centre General Linguistics / University of Cologne.
- van Os, C. (1989). *Aspekte der Intensivierung im Deutschen*, Volume 37. Tübingen: Gunter Narr Verlag.
- van Tiel, B., E. van Miltenburg, N. Zevakhina, and B. Geurts (2016). Scalar diversity. *Journal of Semantics* 33, 137–175.