

## ***Not very easy: Towards the unification of scalar implicature and understatement\****

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**Abstract** Modified and unmodified gradable adjectives give rise to two distinct and opposing varieties of pragmatic enrichment: scalar implicature and understatement. While earlier work in pragmatics took these to be complementary inferences derived from opposing conversational principles, more recent work in the formal tradition has placed the focus firmly on scalar implicature and related phenomena, with no attempt to also account for understatement. In this paper I argue that there are good reasons to pursue a unified treatment of the two, and outline one possible way of achieving this, framed within the commitment approach to assertion, where I take the commitments that come with asserting a proposition to encompass not only liability for its truth but also acceptance of the social consequences of expressing it. I further discuss how this approach can shed light on recent experimental findings regarding the role of lexical semantics in the pragmatic inferences available to gradable adjectives, as well as a puzzle that these findings pose.

**Keywords:** gradable adjectives, degree modifiers, alternatives, assertion, pragmatic enrichment, negative strengthening

### **1 The problem**

Sentences containing modified and unmodified gradable adjectives give rise to two distinct and opposing types of pragmatic inference. The first and better-studied of these is **scalar implicature**, which involves the negation of some stronger alternative that the speaker could have, but did not, utter. This is exemplified in (1) for positive sentences and (2) for negative sentences (where the inference in question is sometimes referred to as indirect scalar implicature or scale reversal; Chierchia 2004; Gotzner, Solt & Benz 2018a).

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\* For helpful discussion, I would like to thank the audience at SALT33, especially Gennaro Chierchia, Liz Coppock and Larry Horn. Funded by the Deutsche Forschungsgemeinschaft (DFG, German Research Foundation) – SFB 1412, 416591334.

- (1) a. The test was **a bit difficult**.  $\rightsquigarrow$  ... not extremely difficult  
 b. The film was **good**.  $\rightsquigarrow$  ... not excellent
- (2) a. Anna wasn't **very late**.  $\rightsquigarrow$  ... late [= NOT not late]  
 b. Success isn't **certain**.  $\rightsquigarrow$  ... possible [= NOT not possible]

There is, however, also a second variety of pragmatic enrichment available to such examples, namely **inferences of understatement**, which involve strengthening to some more extreme or specific meaning. This inference type is most familiar in negative sentences, where it has been called negative strengthening (Horn 1989) or “inference toward the antonym” (Ruytenbeek, Verheyen & Spector 2017). By way of illustration, *not very tall* in (4a) is semantically compatible with all heights less than what counts as ‘very tall’, and likewise *not great* in (4b) entails simply ‘less than great’; but in both cases, a stronger interpretation is readily derived, roughly ‘rather short’ and ‘rather bad’, respectively. Although less well known, a parallel pattern can also be observed in positive sentences, as in (3a) and perhaps (3b).

- (3) a. The test was **a bit difficult**.  $\rightsquigarrow$  ... really difficult  
 b. The film was **GOOD**.  $\rightsquigarrow$  ... excellent
- (4) a. Anna isn't **very tall**.  $\rightsquigarrow$  ... not tall / rather short  
 b. The film wasn't **great**.  $\rightsquigarrow$  ... not good / rather bad

In earlier work in pragmatics, these two interpretive patterns were viewed as complementary inferences arising from opposing conversational principles. This is exemplified most prominently in Horn's (1984) taxonomy of Q- vs. R-based implicatures, derived respectively from two corresponding pragmatic principles: the Q-Principle (‘say as much as you can’), which gives rise to scalar implicatures, and the R-principle (‘say no more than you must’), which gives rise to pragmatic strengthening. Israel (2011) offers a particularly clear statement of this view:

[If] one assumes that the **Q** Principle is in effect, it follows that the speaker has given as much information as she could. Consequently, a hearer can infer that any stronger utterance the speaker might have made would either be false, or at least would not be something the speaker could confidently vouch for. This, of course, is the logic which underlies scalar implicature. On the other hand, if one assumes that the **R** Principle is in effect, it follows that the speaker may in fact mean more than she says, and a hearer may infer that the explicit, expressed content of an utterance does not exhaust what the speaker hopes to convey. This is the logic which underlies irony, allusion, understatement, and indirectness of all kinds. (p. 113)

Along similar lines, Levinson (2000) derives scalar implicature (e.g. from *some* to *not all*) from his version of the Q Principle ‘what isn’t said, isn’t’ and negative strengthening (e.g. from *not good* to *bad*) from the I Principle ‘what is expressed simply is stereotypically exemplified’; a third M Principle ‘what’s said in an abnormal way isn’t normal’ accounts for the tendency of more complex expressions to be understood as describing non-stereotypical situations.

In most recent work in the formal tradition (e.g. Fox & Katzir 2011; Chierchia 2013), however, the focus has been squarely on scalar implicature and related phenomena, with little attempt to also provide an account of understatement.

The present paper revisits this question, arguing that there are indeed good reasons to pursue a unified treatment of scalar implicature and understatement, and sketching out one potential approach to achieving this, framed within the commitment-based approach to assertion (Peirce 1903, 1931-58; Brandom 1983; MacFarlane 2011; Krifka 2014; Shapiro 2020). The structure of the paper is as follows: In §2, evidence is presented for a close connection between scalar implicature and inferences of understatement, including recent experimental findings. §3 discusses the socially motivated nature of understatement, which I argue is crucial for its analysis. The proposal is presented in §4. Finally, §5 considers the role of adjectival semantics in the availability of scalar implicature versus understating interpretations, and a resulting puzzle for the proposed analysis, and §6 concludes.

## 2 Relationship between scalar implicature and understatement

A variety of evidence points to the conclusion that scalar implicature and understatement are not independent phenomena but rather related or competing inferences. There is first of all a close link between understatement and polarity sensitivity, which itself has been linked closely to scalar implicature (Krifka 1995; Chierchia 2013: and ff.). As observed by Horn (1989), high-degree modifiers that favor negative strengthening are often NPIs or semi-NPIs. For example, all of the modified forms in (5) tend to receive the strengthened interpretation that Homer is rather stupid; correspondingly, the same forms in positive sentences are either ungrammatical (*\*exactly bright*), stylistically marked (*terribly bright*) or have a distinct interpretation (*too bright*).

- (5) Homer isn’t terribly/particularly/especially/exactly/too bright.

The connection is even more visible in the case of English *much* and its cross-linguistic counterparts. As discussed in Solt (2023), *much* on its quantificational use patterns as an NPI, contrasting with *a lot*, which is acceptable in positive as well as negative sentences. Correspondingly, negated *much* receives the strengthened

interpretation ‘a small amount’, whereas negated *a lot* has the weaker interpretation ‘not a large amount’.

- (6) a. \*Homer drank much coffee.  
 b. Homer didn’t drink much coffee. ‘a small amount’
- (7) a. Homer drank a lot of coffee.  
 b. Homer didn’t drink a lot of coffee. ‘not a large amount’

Furthermore, this pattern is not limited to English. It is common cross-linguistically for ‘much’ words to behave as NPIs, examples being found in Afrikaans, Frisian, Greek, Catalan and Japanese, among others; and in all of the cases documented in Solt (2023), the NPI ‘much’ word has a strong interpretation under negation as in (6b), while negated non-NPI ‘much’ words allow the weaker interpretation in (7b).

The negative strengthening–polarity sensitivity connection is significant because as noted above, a long tradition (Krifka 1995; Chierchia 2013; and ff.) aligns the analysis of polarity sensitivity to that of scalar implicature: briefly and informally stated, polarity-based restrictions arise when the derivation of a scalar implicature goes wrong in some way. That we observe a connection also to negative strengthening suggests that at least one sort of understating inference – namely that observed in negative sentences – should also be considered as part of the same constellation.

More direct evidence comes from recent experimental findings showing that in negative sentences containing gradable adjectives, the availability of indirect scalar implicature and of negative strengthening are negatively correlated (Gotzner et al. 2018a). Some  $\langle \text{WEAK}, \text{STRONG} \rangle$  adjective pairs prefer scalar implicature; for example, *not certain* tends to implicate *possible*, that is, *NOT not possible*. Others, conversely, tend towards negative strengthening; for example, *not tiny* is commonly judged to implicate *not small*. (In §5 we will return to the question of which factors predict which of the two inferences a given pair of adjectival scalemates will favor.) A similar pattern has been documented for gradable adjectives modified by *very*. As demonstrated by Leffel, Cremers, Gotzner & Romoli (2019), the negation of *very* plus an absolute gradable adjective *Adj* gives rise to the implicature that *Adj* (i.e. *NOT not Adj*) obtains; for example, *not very late* implicates *late*. On the other hand, in the case of *very* plus a vague relative gradable adjective, this inference does not arise: *not very tall* does not implicate *tall* (scalar implicature) but rather tends to be interpreted as *not tall* (negative strengthening). This complementarity gives reason to think that indirect scalar implicature and negative strengthening are in some way in competition with one another, with some yet-to-be-elucidated factors determining which of the two a given  $\langle \text{WEAK}, \text{STRONG} \rangle$  pair will give rise to.

Understatement in positive sentences has received less attention than negative strengthening, and correspondingly there is less available evidence on its relationship

to scalar implicature. One relevant piece of data though comes from the domain of degree modification. As observed by Israel (2011), some moderate-degree modifiers, notably *pretty* and *rather*, are readily understood as understating, to the extent that this seems to have become a conventionalized aspect of their meaning; yet they are nonetheless less emphatic and more tentative than true intensifiers such as *very* or *extremely*, allowing some latitude in the strength of their interpretation that is absent with the latter. Others, however, including *somewhat*, *moderately* and (in my judgement) *fairly*, do not easily allow such an understated reading, but instead have a purely weak or attenuated interpretation; in present terms, these items give rise to a scalar implicature negating some stronger modified form. These patterns are illustrated below:

- (8) a. rather/pretty important  $\rightsquigarrow$  important indeed!  
(cf. very important)  
b. somewhat/moderately/fairly important  $\rightsquigarrow$  moderately but not extremely important

Thus here again we see an echo of the complementarity observed in negative sentences with modified and unmodified gradable adjectives.

In summary, the overall picture is that of a close relationship between understatement and scalar implicature. In what follows we try to account for this.

### 3 Understatement as socially motivated

A well-established observation is that understatement, like other instances of R-based implicature, is to some extent socially motivated. Lakoff (1973) proposes a politeness principle of “Give Options”, that is, give the addressee interpretive flexibility, which a speaker may follow by using a weaker expression to avoid the social awkwardness that might accompany the use of a stronger form. Likewise, Brown & Levinson (1987) list understatement as an ‘off-record’ politeness strategy which may be invoked for purposes of face management, face being “the public self-image that every member [of a society] wants to claim for himself” (p. 61). A speaker who wants to undertake a face threatening act, but who wishes to avoid the responsibility for having done so, can choose an indirect off-record strategy such as understatement, thereby leaving it for the addressee to decide how to interpret their communicative act.

A point made in favor of the social or face-related motivation for understatement is the existence of a so-called ‘polarity asymmetry’ in negative strengthening, whereby evaluatively positive adjectives are more prone to receiving a strengthened interpretation when negated than their evaluatively negative antonyms (Ducrot 1973; Brown & Levinson 1987; Horn 1989, 2017; Levinson 2000). For example, *not nice*

tends to convey (*rather*) *mean*; by contrast, *not mean* does not imply (*rather*) *nice*, but instead tends to suggest some middle ground between ‘nice’ and ‘mean’. The reason typically put forward for this asymmetry is that a speaker can avoid the overt face threat that would come with using a bare evaluatively negative adjective such as *mean* by using the weaker negated positive form (e.g. *not nice*), while allowing the hearer to work out the strengthened interpretation; but there is no corresponding face-related reason to avoid a bare positively evaluative adjective such as *nice*.

In some work on negative strengthening, and understatement more generally, the tendency has been to focus on the avoidance of a face threat to the hearer as a motivation for understatement. But other authors make clear that there are further social motivations beyond sparing the hearer’s feelings that might prompt a speaker to use a semantically weaker form to convey a stronger message. Speaking of negative strengthening, Horn (1989) notes that it tends to arise when there is “plausible reason to mask the speaker’s true opinion,” which is in particular the case with the negation of “those gradable predications involving desirable properties, those whose denial would reflect undesirably on the subject, speaker, and or/addressee” (p. 334). And further: “[Negative strengthening is] motivated by the goal of avoiding the direct assertion of some negative proposition in a context in which it would tend to offend the addressee, overcommit the speaker, or otherwise count as inappropriate” (p. 360). Similarly, Israel (2011) observes that “communication itself can be a risky business. The more information one conveys with one’s utterance, the more one imposes on the credulity of one’s audience, and the more one risks being exposed to disagreement and rejection” (p. 213).

Recent experimental work has provided substantiation for the social aspect of understatement. In particular, the existence of the polarity asymmetry in negative strengthening has been experimentally demonstrated (see especially Ruytenbeek et al. 2017; Gotzner & Mazzarella 2021; Mazzarella & Gotzner 2021; Gotzner & Kiziltan 2022). As additional evidence for the social underpinnings of negative strengthening, Gotzner & Mazzarella (2021) furthermore find an influence of the social relationship between speaker and hearer on the extent to which a strengthened interpretation is derived. In the original conceptualization of Brown & Levinson (1987), the power differential between speaker and hearer is one of several factors determining the weight of a face threatening act. In line with this, Gotzner & Mazzarella (2021) find more negative strengthening when a low-power speaker is speaking to a high-power interlocutor than in the opposite configuration. Consistent with the observation that social motivation cannot be equated with the preservation of the hearer’s face, Mazzarella & Gotzner (2021) find that the presence of a direct face threat to the hearer (e.g. telling a colleague that her CV was not good) did not result in a greater level of negative strengthening of positive adjectives than when such a direct threat was absent (e.g. telling the colleague that her competitor’s CV



was not good); apparently it is adjectival polarity itself rather than explicit face threat potential that encourages the strengthened interpretation. Taking the perspective of the speaker, Yoon, Tessler, Goodman & Frank (2020) find an influence of speaker goals on the choice of evaluative adjectives: speakers describing ‘bad’ states (e.g. a poorly rated poem or performance) are more likely to use indirect negative utterances (e.g. *it wasn't terrible*) if their goal is to be both informative and kind than if it is to be only informative or only kind. The authors demonstrate that their results are best reproduced in an RSA model that includes informative, social and self-presentational goals.

In summary then, there is considerable available support that speakers’ choice of evaluative utterances, and hearers’ interpretations of such utterances, are sensitive to the social needs of the interlocutors: the use of semantically weak forms to convey stronger meanings (and the interpretation of weak forms as such) is prone to arise when the use of an explicitly strong form is likely to have negative social consequences. In what follows, I take this social or interpersonal component of strengthening inferences to be central to their analysis

#### 4 Proposal

The proposal developed here is framed within the tradition of commitment-based approaches to assertion (Peirce 1903, 1931-58; Brandom 1983; MacFarlane 2011; Krifka 2014; Shapiro 2020), according to which when one makes an assertion, one makes a commitment or takes on a liability. The nature of these commitments or liabilities has been framed variously by different authors. For Peirce (1903, 1931-58), it is a responsibility for the truth of the asserted proposition, such that the speaker is liable to suffer negative social consequences, such as loss of reputation, should that proposition turn out to be false. For Brandom (1983), it is the obligation to respond to challenges by providing evidence in support of the proposition, coupled with a license for the hearer to subsequently assert the proposition using the original speaker’s assertion as justification. Neither of these specific views links assertion directly to belief on the part of the speaker; but it is natural to suppose that under normal circumstances, a speaker will only obligate themselves to provide evidence for a proposition  $p$  and/or to accept social penalties should  $p$  prove false if they in fact believe  $p$  to be true.

Importantly for the present purposes, the commitment-based approach situates the core nature of assertion in the social world inhabited by interlocutors, as it is here that the obligations and potential consequences associated with a speech act of assertion play out. I propose to expand this social component. Specifically, the theories sketched out above take the commitments associated with assertion to relate to the content of the asserted proposition  $p$ . I suggest that in addition, these

commitments should be taken to include liability for the social consequences of asserting  $p$  in the given context, regardless of its truth or falsity. I do not attempt to provide a complete inventory of what those social consequences are, but minimally they include offense to the hearer (cf. [Brown & Levinson 1987](#)) as well as damage to the speaker's own reputation (for example, a perception of the speaker as unkind or overly opinionated).

For concreteness, I take commitment to be represented semantically via an ASSERT operator based on [Krifka \(2014\)](#), as presented in [Greenberg & Wolf \(2018\)](#):

- (9)  $\llbracket \text{ASSERT} \rrbracket = \lambda p \lambda c . ic' . c' = \langle c_{sp(aker)}, c_{h(earer)}, c_t, c_w \cap \{w : \text{assert}(p)(c)\} \rangle$   
 (10)  $\text{assert}(p)(c)$  holds in  $w$  iff the speaker  $sp$ :  
 a. takes liability for the truth of  $p$  in  $w$   
 b. accepts the social consequences of uttering  $p$  in context  $c$

This treatment of assertion is accompanied by a pragmatic principle based on [Katzir \(2007\)](#) which specifies that a proposition should not be asserted if there is a more informative alternative (defined in terms of asymmetric entailment) that could have been asserted instead:

- (11) **Pragmatic Principle:** Do not assert  $p$  if there is a more informative alternative  $p'$  ( $\lambda w . p'_w \subset \lambda w . p_w$ ) that is assertable in the sense of (9), (10).

With this in place, we are in a position to derive the two varieties of pragmatic inference that are the focus of this paper. Suppose we have a pair  $\langle \text{WEAK}, \text{STRONG} \rangle$  of adjectival alternatives differing in strength, as for example  $\langle \text{a bit difficult}, \text{very difficult} \rangle$ :

- (12) a. The test was a bit difficult.  
 b. The test was very difficult.

When a speaker  $sp$  asserts a proposition based on the weak alternative  $p_{\text{WEAK}}$  (e.g. (12a)), the hearer  $h$  must reason why they didn't assert the corresponding stronger alternative  $p_{\text{STRONG}}$  (e.g. (12b)) instead. This reasoning process can follow two distinct paths, which I term **belief-based** and **hesitancy-based** reasoning.

**Belief-based reasoning:** As one possibility, the hearer  $h$  might reason from (10a) that  $sp$  cannot take liability for the truth of  $p_{\text{STRONG}}$  because they do not believe it to be true. From here,  $h$  can conclude that  $p_{\text{STRONG}}$  is (according to  $sp$ ) false. This is, of course, the classic reasoning that yields **scalar implicature**.



**Hesitancy-based reasoning:** As another possibility, the hearer *h* might reason from (10a) that *sp* privately believes that *p<sub>STRONG</sub>* obtains but is not prepared to take public liability for its truth, perhaps because they are unable to provide sufficient evidence for it. Alternately, *h* might reason from (10b) that *sp* believes *p<sub>STRONG</sub>* but is unwilling to accept the social consequences that would come with asserting it. A speaker can count on their hearer being able to follow such reasoning, and thus can use a weaker alternative to imply some stronger meaning. Conversely, a hearer can infer that even though the speaker only asserted the relatively uninformative proposition *p<sub>WEAK</sub>*, she intended to at least suggest the more informative *p<sub>STRONG</sub>*. This is the reasoning that gives rise to **inferences of understatement**.

Here, the reader might observe that there is an asymmetry in the above-described derivations of the two inference types. There is only a single route to the derivation of scalar implicature, namely via the truth clause (10a); but there are two routes to the derivation of inferences of understatement, one based on liability for truth (10a) and a second based on social consequences (10b). This is, I think, justified, in that the two sorts of reasons for non-assertion are difficult to separate from one another, and indeed may both be present in the same situation. Consider again the example in (12). Suppose I privately believe that the test in question was extremely difficult. I might nonetheless hesitate to say so explicitly, both because I'm not prepared to respond to disagreement or challenge ("Really? I thought it was pretty easy!") and because I am concerned about what you might think of me as a result (for example, that I am not very smart). Should I choose to express myself more carefully with a weaker option such as (12a), my hearer need not diagnose the precise source(s) of my hesitancy to be able to infer that I believe something stronger than what I have explicitly asserted, and in fact am at least hinting at such a meaning.

In this, we can observe how even clearly recognizable understatement (e.g. *a bit difficult, not great*) differs from the explicit assertion of the corresponding stronger proposition (*really difficult, rather bad*). A similar meaning can be communicated, but it is left for the hearer to work this out, with this being only one possible interpretive option, so that the speaker is left with something like plausible deniability. Understatement, then, is the safe choice.

To summarize this section, semantically weak expressions such as *a bit difficult, not great* and the like are inherently low in informativity. Their use thus invites the hearer to reason about why the speaker did not choose to use some more informative alternative instead. The approach to assertion outlined above provides the basis for two paths of reasoning the hearer might follow: either that the speaker lacks belief in the stronger alternative, or alternately that the speaker has the relevant belief but is unwilling to face the various consequences that its assertion might incur. This in turn gives a basis for two opposing varieties of pragmatic inference.

## 5 Role of vagueness and scale structure

I have chosen in this paper to focus specifically on gradable adjectives, in part because the varieties of pragmatic enrichment available to sentences containing modified and unmodified adjectives have been the subject of some considerable interest in the recent experimental literature. One central finding from this body of work is that certain adjectival expressions tend to give rise to scalar implicatures, while others are more likely to favor strengthening inferences, in particular negative strengthening. Furthermore, the lexical semantics of the adjectives in question, in particular the structure of the underlying measurement scale and the nature of the standard of comparison invoked by the adjective, have been shown to play a significant role in determining which of these two patterns will emerge. In this section, I review these results and discuss how they relate to the proposal developed in §4. It will be seen that certain of these findings lend themselves to explanation on the basis of the assertion-based approach, while others suggest that the proposal as developed above may require refinement.

In an influential paper that has prompted much subsequent research on the topic of ‘scalar diversity’, [van Tiel, van Miltenburg, Zevakhina & Geurts \(2016\)](#) tested 43  $\langle \text{WEAK}, \text{STRONG} \rangle$  pairs of alternatives for their propensity to give rise to scalar implicatures, using a task in which participants read a sentence including the weak term (e.g. *she is intelligent*) and were asked whether it could be inferred that, according to the speaker, the strong term did not obtain (e.g. that *she is not brilliant*). Considerable diversity was found in implicature rates across scales. Furthermore, scale boundedness was found to be a significant predictor: scalar implicatures are generated more frequently when the stronger term denotes a scalar endpoint (e.g. *some*  $\rightsquigarrow$  *not all*, *possible*  $\rightsquigarrow$  *not certain*) than when it does not (e.g. *intelligent*  $\rightsquigarrow$  *not brilliant*, *small*  $\rightsquigarrow$  *not tiny*). This finding regarding boundedness is reproduced for adjectival scales in particular by [Gotzner, Solt & Benz \(2018a,b\)](#), who tested 70  $\langle \text{WEAK}, \text{STRONG} \rangle$  adjective pairs using an experimental task designed to avoid possible confounds in that of [van Tiel et al. \(2016\)](#).

The above-described studies do not allow a direct comparison between scalar implicature and understating inferences in positive sentences, since the latter (e.g. a potential inference from *possible* to *certain* or from *intelligent* to *brilliant*) were not tested; in fact, there is overall very little experimental work on understatement in positive sentences. However, experiments on the interpretation of negated adjectival expressions help fill this gap.

In one relevant work, [Leffel et al. \(2019\)](#) find that the interpretation of sentences of the form *John is not very Adj* depends on whether *Adj* is vague. In the case of the absolute gradable adjective *late*, whose interpretation is based on a fixed threshold, a scalar or manner implicature is generated relative to the corresponding

negated bare form *not late*; that is, *not very late* is interpreted as ‘late (=NOT not late) but not very late’. In the case of the relative gradable adjective *tall*, however, whose interpretation is based on a vague or underspecified threshold, no such inference is found. Rather, the *not very* construction undergoes negative strengthening: whereas the interpretation of *very tall* is clearly distinct from that of *tall*, the interpretation of *not very tall* overlaps almost completely with that of *not tall*, suggesting the former has been strengthened. Thus in both cases the interpretation of *not very Adj* is stronger or more specific than its purely semantic one, but the nature of this strengthening depends on the semantics of the bare adjective that constitutes the stronger alternative: scalar implicature in the case of the non-vague adjective and negative strengthening in the case of the vague one. A similar contrast in interpretation was found between *not very tall/fast/hot* (which compete with the vague *not tall/fast/hot*) and *not much taller/faster/hotter than average* (which compete with the non-vague *not taller/faster/hotter than average*). Observe also that these results align to the above-discussed findings on the role of boundedness: in both cases, scalar implicature is favored when the stronger member of a pair of alternatives (here, the negated bare adjective or comparative) has a definitive, non-vague interpretation.

The investigation is extended to unmodified gradable adjectives by [Gotzner et al. \(2018a\)](#), who in addition to assessing scalar implicature rates in positive sentences also investigate (indirect) scalar implicature and negative strengthening in negative sentences based on  $\langle \text{WEAK}, \text{STRONG} \rangle$  adjective pairs. For example:

- (13) a. *not brilliant*  $\rightsquigarrow$  intelligent (indirect) scalar implicature  
 b. *not brilliant*  $\rightsquigarrow$  not intelligent negative strengthening

As discussed in §2, the availability of these two inference types was found to be negatively correlated. Furthermore, which of the two is more likely to arise is to some extent predictable from the lexical semantics of the adjectival scalemates. Specifically, indirect scalar implicature is favored when the negated adjective denotes a scalar endpoint (as in *not obligatory*  $\rightsquigarrow$  *allowed* or *not extinct*  $\rightsquigarrow$  *rare*), whereas negative strengthening is favored when the negated term is an extreme adjective in the sense of [Morzycki \(2012\)](#) (as in *not stunning*  $\rightsquigarrow$  *not attractive* or *not tiny*  $\rightsquigarrow$  *not small*). Here too we have a hint that vagueness or the lack thereof has an influence, in that endpoint-denoting adjectives are non-vague (or at least less vague than those with context-dependent relative standards), while extreme adjectives (e.g. *enormous*, *tiny*, *stunning*, *horrific*) often are. Importantly, though, unlike the influence of boundedness discussed earlier, these effects of the lexical semantics of the negated adjective represent effects of the asserted expression, not its unasserted stronger alternative.

Other work shows a similar effect. In particular, Alexandropoulou & Gotzner (2022) find that while negated relative adjectives (e.g. *not large*) tend to undergo negative strengthening, negated absolute adjectives (e.g. *not clean*) are more likely to receive their semantic interpretation. Even the interpretive tendencies of moderate degree modifiers mentioned in §2 can be viewed through this lens. As discussed there, modifiers including *fairly* and *somewhat* tend to license a scalar implicature that a stronger term such as *very* does not apply, whereas *pretty* and *rather* are readily interpreted as expressing understatements. This corresponds to a distinction in their lexical semantics proposed by Solt & Wilson (2021). The first pair have existential semantics: *fairly important* can be analyzed as *important* on some allowable interpretation, and *somewhat important* means *important* to some extent. Conversely, the latter pair have more vague semantics: *pretty important*, for example can be analyzed as *important* on a ‘good’ interpretation of the adjective. Thus here again, greater vagueness in the asserted modifier favors understatement, whereas a more definitive interpretation tends to correspond to the availability of scalar implicature.

Let us consider how these various results relate to the proposal developed in the previous section. That the lexical semantics of the unasserted stronger alternative to some asserted expression play a role in the type of inferences available is not surprising on the proposed account, which derives pragmatic enrichment on the basis of the hearer’s reasoning about why the speaker chose not to use some stronger term. Consider in particular the effect of vagueness or the lack thereof, that is, whether the stronger adjectival expression has a fixed absolute interpretation (e.g. denoting a scalar endpoint) or is instead vague or underspecified. As discussed by Leffel et al. (2019), for a scalar implicature from  $p_{WEAK}$  to  $\neg p_{STRONG}$  to go through, it is necessary that there be clear cases of situations that can be described by  $p_{WEAK}$  but not  $p_{STRONG}$ . This intuitively obtains when  $p_{STRONG}$  is based on an adjective with an endpoint-based or similar absolute denotation (e.g. *certain*, *late*), as these provide natural transition points between truth and falsity (cf. Kennedy 2007). But it is less clearly the case with a vague stronger term (e.g. *brilliant*), whose threshold is underspecified or blurry, with the consequence that many situations describable with  $p_{WEAK}$  could, depending on how that vagueness is resolved, potentially also be described by  $p_{STRONG}$ .

Leffel et al. (2019) formalize this intuition regarding the role of vagueness via a proposal that implicatures are not calculated when the conjunction of  $p_{WEAK}$  and  $\neg p_{STRONG}$  would be a so-called ‘borderline contradiction’ (Alxatib & Pelletier 2011; Ripley 2011). In the present approach, we might restate this by positing it be a prerequisite of what I have termed belief-based reasoning that it only goes through when there is adequate separation between  $p_{WEAK}$  and  $p_{STRONG}$ . In fact, this line of explanation is supported by a further finding of Gotzner et al. (2018a), namely that a greater perceived scalar distance between the interpretations of the strong and weak

members of a pair of adjectival scalemates tends to favor both direct and indirect scalar implicature.

Looking at it from the opposite perspective, it is plausible that vagueness also serves as an invitation to hesitancy-based reasoning, and the corresponding derivation of inferences of understatement. A speaker who privately believes in the truth of a strong but vague proposition such as *she is brilliant* or *the test was really difficult* might still be justifiably reluctant to assert it explicitly, because the hearer might interpret the vague term differently (i.e. assume a different boundary between *brilliant* and just plain *intelligent* or between *really difficult* and merely *difficult*), opening the speaker to the possibility of challenge. A weaker assertion such as *she is intelligent* or *the test was a bit difficult* is a safer choice for the speaker; and conversely, a hearer who recognizes such grounds for caution can infer that the speaker believes and intends to convey something stronger than what she has explicitly uttered.

On the other hand, the effects found for the lexical semantics of the weak member of a pair of adjectival scalemates – that is, the asserted expression – are somewhat more puzzling on the present account. The proposal put forward here derives both varieties of pragmatic inference from a hearer’s reasoning about a speaker’s choice not to use some stronger alternative. That the lexical semantics of that stronger alternative should play some role is very plausible; but it is less clear why the semantics of the weaker expression that is actually asserted should have an effect. One possibility is that vagueness or lack of boundedness in the semantics of the weaker term is a further factor contributing to a potential lack of separation between *PWEAK* and *PSTRONG*, argued above to disfavor scalar implicature. But there is another possibility that merits consideration, one that would imply the need for refinement of the proposal developed in §4. Suppose a speaker asserts a weaker proposition *PWEAK* instead of some stronger alternative *PSTRONG*. A hearer who follows the path of hesitancy-based reasoning will infer that the speaker believes and intends to convey something stronger than *PWEAK*. But the inference need not be to *PSTRONG* itself (as assumed above), but merely to some stronger meaning. Perhaps the presence of a vague scalar expression in the asserted proposition facilitates the derivation some suitable stronger proposition, because it introduces an underspecified or context-dependent threshold, which itself can be shifted to produce a stronger interpretation. This would be to say that the inference of understatement should be understood as an inference to a stronger meaning related to *PWEAK* via some sort of coercion. That there is an obvious alternative *PSTRONG* that the speaker has conspicuously avoided might serve to trigger this process, without it being the case that *PSTRONG* itself is the inferred meaning. This type of account would in fact be consistent with suggestions in the literature (e.g. Krifka 2007) that the strengthened reading of a negated scalar expression such as *not happy* is less extreme

than the corresponding lexical antonym, e.g. *unhappy*. To resolve this question, further experimental work to fully profile the strengthened interpretations of gradable adjectives would certainly be valuable.

## 6 Conclusions and open questions

In this paper, I have proposed that the treatment of scalar implicature and understatement should be unified – echoing a view found explicitly in certain earlier works in pragmatics, but not common in current work in the formal tradition. Both inference types, I have argued, can be derived via reasoning about a speaker’s choice not to use some stronger, more informative alternative to what she has in fact asserted. More specifically, the account put forward here is based on an approach to assertion according to which asserting entails taking on two types of commitment: liability for the truth of the asserted proposition and acceptance of the potential social consequences of expressing it. This licences two types of reasoning about why a speaker has chosen to assert a relatively uninformative proposition instead of something stronger – belief-based and hesitancy-based – which in turn give rise to two varieties of pragmatic enrichment, upper-bounding scalar implicatures and strengthening inferences of understatement.

It must of course be acknowledged that the discussion here only scratches the surface of a rich and complex topic, and the proposal sketched out above is only a first attempt. Many very central questions remain open, including the role of prosody in disambiguating between pragmatically enriched meanings, the path towards conventionalization of understated interpretations, and the availability of strengthened readings in embedded and non-assertive contexts. Nor have I addressed how the empirical data discussed here might be approached within a grammatical theory of implicature, where certain strengthened readings have been derived via recursive exhaustification (e.g. Meyer 2016 on conjunctive readings of disjunction). But while the present contribution is certainly not the final word on the topic, I hope the discussion here has highlighted some reasons to think that a unified approach is desirable.

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