# Gradability and imprecision across categories: the case of *sorta*

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## 1 Introduction

Issue of lexical semantics:

- What is the lexical semantics of the English modifier *sorta*?[1]

- What does *sorta* do and why can it modify verbs, adjectives, and (in limited cases) nouns?

(1) *Adjectives*
   a. It's <u>sorta</u> hard to explain.
   b. ...lot of young people think their parents are starting to seem, you know, <u>sorta</u> old and over the hill... (Corpus of Contemporary American English)
   c. Gas is <u>sorta</u> expensive on the island. (Google)

(2) *Verbs*

   a. But I can't see how that Diaz just <u>sorta</u> evaporated, like some kid's bad dream. (COCA)
   b. ...running on concrete and accidentally <u>sorta</u> kicked the ground. (Google)

(3) *Nouns*
   a. a <u>sorta</u> fairytale[2]
   b. I may be your <u>sorta</u> mom now and I'm practically a child myself.[3]

This sheds some light on big theoretical issues: what expressions are gradable, and what are the underlying representations of gradability?

- Many adjectives are clearly gradable.

- Some verbs also appear gradable when used with certain expressions. What are the representations underlying this?

What I'll claim:

- *Sorta* affects imprecision.

- Linguistic expressions have lexically specified parameters specifying how they deal with imprecision.

- At least two sources of imprecision.

- Verbal gradability through imprecision alternatives.

Where we're going:

- First, background on the behavior of *sorta* with adjectives, verbs, and nouns.

- Next, introduce Lasersohn's concept of a pragmatic halo and Morzycki's implementation of halos.

- After that, develop an analysis of *sorta*.

- Finally, some brief discussion.

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[1]Note on conventions: First, I reserve *sorta* for the word that's the focus of this talk, to distinguish it from *sort of*, as in *a sort of book*. The contraction of *sort of* to *sorta* is optional, however, and in some examples where I use *sorta* the contraction may not be available to speakers. Second, some speakers prefer to use *kind of*/*kinda* where others prefer to use *sorta*. I see no systematic difference between *kinda* and *sorta* and assume that they are variants of each other.

[2]Tori Amos, "A Sorta Fairytale"

[3]Modern Family, "The Future Dunpheys"

## 2 Background on *sorta*

### 2.1 *Sorta* and adjectives

*Sorta* can modify adjectives in the absolute construction (4), as well as comparatives (5), and constructions involving *too* and *enough* (6).

(4) a. This woman is sorta tall.

    b. This guy is sorta clever.

(5) a. Bill is sorta taller than Sue.

    b. Sue is sorta more clever than Mary.

(6) a. He's sorta too tall to fit through the door.

    b. He's sorta tall enough to ride the rollercoaster.

Important to note in these examples are (i) the paraphrases available and (ii) the unclear entailments or uncertainty in each construction involving *sorta*.

(7) This woman is sorta tall.

    a. "This woman is close to the standard for tallness."

    b. DOESN'T ENTAIL: This woman is tall.

(8) Bill is sorta taller than Sue.

    a. "Bill's height is close to the point at which he'd be taller than Sue."

    b. DOESN'T ENTAIL: Bill is taller than Sue.

With adjectives, scale structure doesn't seem to impact felicity of *sorta* (diagnostics based on Kennedy and McNally (2005)).

(9) a. The man is $\left\{ \begin{array}{l} \text{*completely} \\ \text{*slightly} \\ \text{very} \end{array} \right\}$ tall.

    b. The door is $\left\{ \begin{array}{l} \text{completely} \\ \text{slightly} \\ \text{*very} \end{array} \right\}$ open.

    c. The room is $\left\{ \begin{array}{l} \text{*completely} \\ \text{slightly} \\ \text{very} \end{array} \right\}$ dirty.

(10) a. The man is sorta tall.

    b. The door is sorta open.

    c. The room is sorta dirty.

### 2.2 *Sorta* and verbs and nouns

*Sorta* acts as a hedge. Signals a mismatch between what the speaker said and what they might have had in mind.

(11) *With verbs*

    a. He sorta swam over to the boat.

    b. The player sorta kicked the ball.

(12) *With nouns*

    a. a sorta fairytale

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

*Sorta* has an approximative flavor to it. With verbs this can be paraphrased with circumlocutions such as *did something like*, or *close to but not quite*.

(13) a. He sorta swam over to the boat.
"He did something like swimming."

    b. The player sorta kicked the ball.
"The player did something close to but not quite kicking the ball."

Generally, entailments from *sorta V* to *V* do not go through.

Trying to force a contradiction shows that *sorta* is able to weaken the entailments of the verb phrase.[4]

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

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

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

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

Importantly, this shows that there are truth conditional consequences for the use of *sorta* here.

Finally, this looks like a bona fide case of verbal gradability (Bolinger (1972) implicitly takes it to be one): a modifier used with gradable adjectives is able to be used with verbs, which we could take as a sign of gradability.

The *sorta* available with nouns behaves similarly, but we should be careful not to confuse it with the noun+preposition *sort of,* which has a different interpretation, as shown in (16) and (17).

(16)    a.  a sort of fairytale
            "a type of fairytale"

        b.  a sorta fairytale
            "almost but not a fairytale"

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

        b.  A Porsche is a sorta car.

When used with the contradiction test in (18), *sorta* but not *sort of* allows for the entailment to be weakened.

(18)    a.  This is a sort of fairytale, *but it's not a fairytale.

        b.  This is a sorta fairytale, but it's not a fairytale.

## 2.3   The issues

Several issues crop up:

- Why can *sorta* appear across categories? What does *sorta* mean so that it would allow that?

- How does *sorta* weaken entailments?

- How does *sorta* induce what looks like gradability with verbs and nouns?

# 3   Pragmatics halos and imprecision

## 3.1   Lasersohn's halos

Lasersohn (1999): Some expressions can be used even if they're false (strictly speaking).

(19)   *Jen is discussing with Jim and Jill when various people arrived at their party the night before. Jack arrived at exactly 6:58pm.*
       **Jen**: What time did Jack arrive?
       **Jim**: He arrived at 7pm.

(20)   #**Jill**: No, he arrived at 6:58pm.

What Jim says in (19) is false, but licit. Jill is saying something truthful, but sense that she is being uncooperative in (20).

Lasersohn's conclusion is that discourses allow for a certain amount of imprecision. Speakers allow each other some pragmatic slack.

Pragmatic slack modeled as a ᴘʀᴀɢᴍᴀᴛɪᴄ ʜᴀʟᴏ. Pragmatic halo is a set of pragmatically ignorable differences for some expression.

Sʟᴀᴄᴋ ʀᴇɢᴜʟᴀᴛᴏʀs contract the size of the halo (allowing for expressions to be more precise).

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[4]This test has its roots in Bolinger (1972), who also notes that *sorta* can weaken entailments.

(21)　*Jen is discussing with Jim and Jill when various people arrived at their party the night before. Jack arrived at exactly 6:58pm.*
　　**Jen**: At exactly what time did Jack arrive?
　　\***Jim**: He arrived at 7pm.
　　**Jill**: No, he arrived at 6:58pm.

**Claim:** *Sorta* acts like a Lasersohnian slack regulator. It expands a halo in order to allow less precision in interpretation.

Not exactly like e.g., *exactly* and *all*, which contract the halo.

## 3.2　An alternatives-based implementation

Morzycki (2011): Interpretation function $\llbracket . \rrbracket$ is parameterized to a degree of precision $d$ (cf. world argument).

Lower degree of precision intuitively corresponds to "looser" interpretation (more later). More pragmatic slack (in Lasersohn's sense) is afforded.

Account of metalinguistic comparatives, such as in (22). MLs compare halo size, as in the simplified denotation in (23).

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

　　b.　Clarence is a syntactician more than a semanticist.

(23)　$\llbracket \textit{George is more dumb than crazy} \rrbracket^{d'}$
　　$= \mathbf{max}(\lambda d. \llbracket \textit{George is dumb} \rrbracket^{d}) > \mathbf{max}(\lambda d. \llbracket \textit{George is crazy} \rrbracket^{d})$

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

How to think about denotations:

- Set of Hamblin alternatives (Hamblin, 1973; Rooth, 1985; Kratzer & Shimoyama, 2002).

- Alternatives model Lasersohn's pragmatic halos. The halo is the denotation.

- Alternatives are generated with the $\approx$ relation, which is parameterized to a degree of resemblance and a context (25).

(24)　$\llbracket \textit{dumb} \rrbracket^{d,C} = \{ f_{\langle e,t \rangle} : f \approx_{d,C} \mathbf{dumb} \}$

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

Lower degree of precision entails more objects in the halo. As the degree of precision lowers, the size of the halo increases.

(26)　a.　$\llbracket \textit{dumb} \rrbracket^{1,C} = \{ \mathbf{dumb} \}$

　　b.　$\llbracket \textit{dumb} \rrbracket^{.9,C} = \{ \mathbf{dumb}, \mathbf{ignorant}, \mathbf{dopey}, \mathbf{foolish}, \dots \}$

　　c.　$\llbracket \textit{dumb} \rrbracket^{0,C} = D_{\langle e,t \rangle}$

A typeshift, PREC, can be used to get access to the degree of precision, where PREC binds the degree parameter with a lambda.

(27)　$\llbracket \text{PREC } \alpha \rrbracket^{d} = \lambda d' \left[ \llbracket \alpha \rrbracket^{d'} \right]$

For convenience, I'll represent PREC as a node in the syntax.

# 4　Analysis

## 4.1　Intuition

Analytical intuitions:

- *Sorta* is not a degree word in the usual sense. Rather, *sorta* affects imprecision across categories.

- *Sorta* lowers the degree of precision to which some expression is interpreted.

- This has different effects, depending on the predicate *sorta* combines with:

– Verbal and nominal domain: lowered degree of precision corresponds to newly available meanings.

– Adjectival domain: lowered degree of precision corresponds to a halo of uncertainty around some threshold.

## 4.2 Assumptions

Assumptions about the adjectival system:

- DegP is the extended projection of AP (Abney, 1987; Corver, 1990; Grimshaw, 1991; Kennedy, 1999).

- Adjectives denote relations between degrees and individuals (type $\langle d, et \rangle$).

- Degrees exist in the ontology (von Stechow, 1984; Schwarzchild & Wilkinson, 2002, and others).

- Assume a null morpheme POS, as in (29), which asserts that a degree meets or exceeds a contextually defined standard. The standard is supplied by the **standard** function (Cresswell, 1976; von Stechow, 1984; Bierwisch, 1989; Kennedy, 1999).

(28)

DegP
$\langle et \rangle$

Deg    AP
$\langle det, et \rangle$    $\langle det \rangle$
POS
tall
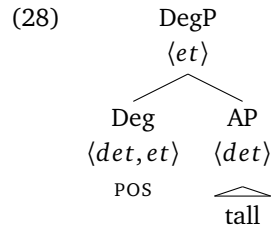
(29) $[\![\text{POS}]\!] = \lambda G \lambda x \exists d \, [G(d)(x) \wedge d > \textbf{standard}(G)]$

(30) $[\![tall]\!] = \lambda d \lambda x \, [\textbf{tall}(d)(x)]$

(31) $[\![\text{POS } tall]\!]$
$= [\![\text{POS}]\!]([\![tall]\!])$
$= \lambda x \exists d \, [\textbf{tall}(d)(x) \wedge d > \textbf{standard}([\![tall]\!])]$

Assumptions about what the precision parameter does:

- $\approx$ isn't the only way of generating imprecision.

- Imprecision in other domains: quantifiers, the definite, comparatives, and so on. Not a straightforward fact that these rely on a notion of resemblance modeled by $\approx$.

- Therefore, I assume that different lexical items can encode in different ways how to use their degree of precision (more on this later).

- Not radical: comparing the degree of precision to world arguments, lexical items can use their world arguments as they see fit as well.

## 4.3 *Sorta* and verbs

Adopting the framework for imprecision in Morzycki (2011). Some advantages:

- Explicitly manipulates something like a metalinguistic dimension. Intuitive connection with examples where *sorta* modifies a noun or a verb.

- Compositional.

What does a semantics for *sorta* need?

- *Sorta* must supply a degree of precision and set the precision parameter for the object it combines with.

- It must pick an item from a halo (set of alternatives).

- This must be applied to some individual.

Schematically, this is as in (32), where *Con* is some constraints on the degree of precision.

(32) $[\![sorta \; \alpha]\!]^{d'} = \lambda x \exists d \, \Big[ Con(d) \wedge \exists f \in \big[ [\![\text{PREC } \alpha]\!]^{d'}(d) \big] \big[ f(x) \big] \Big]$

How to characterize the degree of precision (*Con*)?

- Clues due to the approximative meaning of *sorta*. *Sorta V* is approximate to what "counts" as *V*.

- Proposal: what counts for a verb is determined by the standard of precision for the context.

- Standards are well-known from studies of adjectives (Kennedy & McNally, 2005; Kennedy, 2007, and many more).

- The degree *sorta* introduces is close to but not quite the standard degree of precision for the context.

I define a relation $\prec$ "less than close to" that is true just in case a degree is less than but close to value of another degree.

(33) $\forall d \forall d'$, $d \prec_{C,P} d'$ iff $d < d'$ and the value of $d$ is close to $d'$ as determined by the context $C$ and a gradable predicate $P$.

Need to get a standard degree of precision. I assume that the **standard** function is defined...

- ...not only over gradable adjectives (type $\langle d, et \rangle$)

- ...but also properties turned into gradable predicates by way of PREC (also type $\langle d, et \rangle$).

*Sorta* introduces a degree lower than the standard degree of precision. This expands the set of alternatives available (or widens the halo, in Lasersohn's terms).

Due to the alternative semantics, denotations are sets of functions rather than functions themselves.

- Existential quantification is necessary to pull a function from this set, which corresponds to picking a function from the halo.

- Fits with the intuition that e.g., *sorta kick* is a predicate that approximates *kick* — a function in the halo of *kick*.

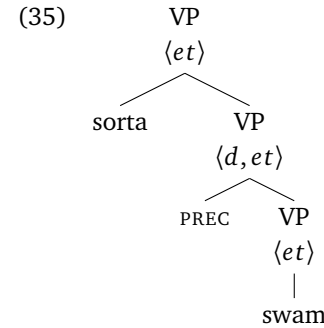This function is applied to the individual argument of *sorta*.

These components come together in the denotation in (34).[5]

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[5]The denotation here is not defined in a particularly compositional way. See Rawlins (2008) for discussion on how to implement a Hamblinized grammar with functions rather

(34) $[\![sorta\ \alpha]\!]^{d',C} =$
$\lambda x \exists d \left[ d \prec_{C, [\![\alpha]\!]} \textbf{standard}([\![\alpha]\!]^{d',C}) \wedge \exists f \in [[\![\alpha]\!]^{d',C}(d)][f_w(x)] \right]$
where $\alpha$ is a gradable predicate type $\langle d, et \rangle$.

(36) illustrates how this works. For readability, I've suppressed the arguments on $\prec$.[6]

(35)

```
              VP
             ⟨et⟩
            /    \
        sorta     VP
                 ⟨d, et⟩
                /      \
             PREC      VP
                      ⟨et⟩
                       |
                     swam
```

(36) $[\![sorta\ \text{PREC}\ swim]\!]^{d',C}$

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

$= \lambda x \exists d \left[ \begin{array}{l} d \prec \textbf{standard}([\![\text{PREC}\ swim]\!]^{d',C}) \wedge \\ \exists f \in \{f_{\langle e,t \rangle} : f \approx_{d,C} \textbf{swim}\}[f(x)] \end{array} \right]$

$= \lambda x \exists d \left[ \begin{array}{l} d \prec \textbf{standard}([\![\text{PREC}\ swim]\!]^{d',C}) \wedge \\ \exists f \in \left\{ \begin{array}{l} \textbf{swim,} \\ \textbf{float,} \\ \textbf{wade,} \\ \dots \end{array} \right\} [f(x)] \end{array} \right]$

Summary: *sorta* widens a halo and picks a function from the widened halo.

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than sets.
[6]*Sorta* can be intuited as having the type $\langle det, et \rangle$, but because it is not formally defined as a function, it's misleading to say it has this type.

Returning to old data, there was the contrast repeated in (37–38), where *sorta V* doesn't entail *V*.

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

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

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

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

This can be adequately explained with the analysis in (34). As the halo is widened to include new functions, the function picked from the set doesn't have to entail the non-modified predicate (*wade* doesn't entail *swim*, for instance).

Gradability of verbs and nouns?

- The cross-categorial nature of *sorta* might have suggested that verbs and nouns are in fact gradable.

- If we even want to call this gradability, this is gradability from a different source.

- Not inherent gradability, but coerced gradability — the typeshift PREC can coerce verbs and nouns into gradable predicates.

- These become predicates graded by resemblance (through $\approx$) and not by an inherent intensity scale.

## 4.4  Imprecision in the adjectival domain

*Sorta*'s approximative flavor makes reference to some standard. For the verbal domain, this was the standard for what "counted" as being in the denotation of a verbal predicate.

In the adjectival domain, *sorta* also has an approximative flavor. However, what it's approximate to depends on the degree construction.

- Absolutive: *sorta* is approximate to the standard contributed by POS.

- Comparative: *sorta* is approximate to the comparative clause.

Recalling previous data, there's no clear entailment to the standard or to the standard of comparison.

(39)  This woman is sorta tall.

     a.  "This woman is close to the standard for tallness."

     b.  DOESN'T ENTAIL: This woman is tall.

(40)  Bill is sorta taller than Sue.

     a.  "Bill's height is close to the point at which he'd be taller than Sue."

     b.  DOESN'T ENTAIL: Bill is taller than Sue.

I assume representations for POS and the comparative as in (41) and (42).[7]

(41)  $[\![\text{POS}]\!] = \lambda G \lambda x \exists d \, [G(d)(x) \wedge d > \mathbf{standard}(G)]$

(42)  $[\![\text{-er}]\!] = \lambda G \lambda D \lambda x \exists d \, [G(d)(x) \wedge d > \mathbf{max}(D)]$

These are true just in case $d$ exceeds the standard, $\mathbf{standard}(G)$ or $\mathbf{max}(D)$.

The entailments of *sorta* with respect to meeting a standard are at best unclear. How to model a certain amount of unclarity?

Conceptualize the unclarity as imprecision. Less precision corresponds to less certainty in whether some value is greater than another. Encode on the $>$ relation by parameterizing it to a degree of precision.

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[7]$\mathbf{max}$ is defined as

(1)  $\mathbf{max}(D) = \iota d [\forall d' [D(d') \rightarrow d' \leq d]]$

(43) $d_1 >_d d_2$ is just like $d_1 > d_2$ except

   (i)   there is a set of degrees $H$ such that $d_2 \in H$ and

   (ii)   $H$ is a set of degrees close to $d_2$, as determined by the degree of precision $d$ (e.g., if $d_2 = 5$, $H = [4.5, 5]$) and

   (iii)   if $d_1 \in H$, $d_1 >_d d_2$ is undefined. Otherwise, it is equivalent to $d_1 > d_2$.

Intuitively, the degree of precision is related to $H$ so that high degrees of precision shrink $H$ so that it is closer to including only $d_2$ and lower degrees of precision increase the size of $H$.

The idea here has analogs in Krifka (2007), who suggests that each point on a scale can be associated with an interval that models approximate interpretation (*3 meters* could be associated with the interval from *2.9 meters* to *3.1 meters*, for instance).

Roughly, what this helps encode is a range of unclarity in judgements.

- If the degree falls outside of the halo, then the comparison is true.

- But, if a degree falls within the halo, it's impossible to tell whether the comparison is true or false.
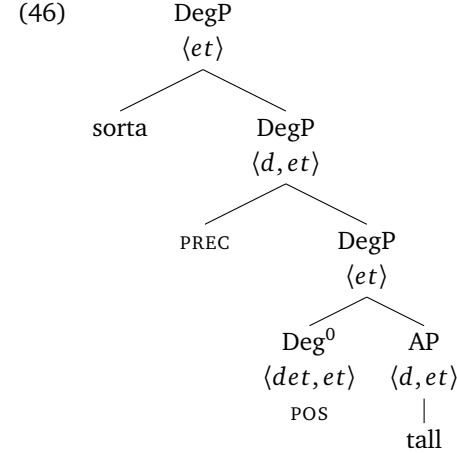
The intuition:

- *sorta* POS *tall* widens the halo around the minimum degree that meets the standard for tallness. If someone has a degree of height in the halo, it's unclear (=lack of entailments) whether they meet the standard for tallness.

- Likewise for the comparative. *Sorta taller* asserts that an individual is within the halo around the maximal degree denoted by the standard of comparison.

Updated versions of POS and the comparative morpheme in (44–45). These are just like their counterparts before changing the $>$ to the imprecision-sensitive $>$.

(44)   $[\![\textit{-er}]\!]^{d,C} = \{\lambda G \lambda D \lambda x \exists d' \left[ G(d')(x) \wedge d' >_d \mathbf{max}(D) \right]\}$

(45)   $[\![\textsc{pos}]\!]^{d,C} = \{\lambda G \lambda x \exists d' \left[ G(d')(x) \wedge d' >_d \mathbf{standard}(G) \right]\}$

Demonstrating an absolutive construction with *sorta*. I simplify the derivation by assuming that the denotation of *tall* is a singleton.[8]

(46)

```
                    DegP
                    ⟨et⟩
                   /    \
               sorta    DegP
                        ⟨d, et⟩
                       /      \
                    PREC      DegP
                              ⟨et⟩
                             /    \
                          Deg⁰     AP
                       ⟨det, et⟩  ⟨d, et⟩
                          POS       |
                                   tall
```

(47)   $[\![\textit{tall}]\!]^d = \{\lambda d' \lambda x \left[ \mathbf{tall}(d')(x) \right]\}$

(48)   $[\![\textsc{pos}]\!]^d ([\![\textit{tall}]\!]^d)$
   $= \{\lambda x \exists d' \left[ \mathbf{tall}(d')(x) \wedge d' >_d \mathbf{standard}([\![\textit{tall}]\!]) \right]\}$

(49)   $[\![\textsc{prec pos} \textit{ tall}]\!]^{d'}$
   $= \lambda d \left[ \{\lambda x \exists d' \left[ \mathbf{tall}(d')(x) \wedge d' >_d \mathbf{standard}([\![\textit{tall}]\!]) \right]\} \right]$

(50)   $[\![\textit{sorta} \textsc{ prec pos} \textit{ tall}]\!]^{d'}$
   $= \lambda x \exists d \begin{bmatrix} d \prec \mathbf{standard}([\![\textsc{prec pos} \textit{ tall}]\!]) \\ \wedge \exists f \in [[\![\textsc{prec pos} \textit{ tall}]\!](d)][f(x)] \end{bmatrix}$

Since $[\![\textsc{prec pos} \textit{ tall}]\!]$ is a singleton here, I'll take some presentational libertites and simplify *sorta* PREC *tall* as in (51).

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[8]A rule of Hamblin Function Application allows function application to work in a Hamblinized system such as this. Morzycki bases his version of HFA off a version in Kratzer and Shimoyama (2002).

(1)   HAMBLIN FUNCTIONAL APPLICATION (Morzycki, 2011)
   If $\alpha$ is a branching node with daughters $\beta$ and $\gamma$, and $[\![\beta]\!]^{d,C} \subseteq D_\sigma$ and $[\![\gamma]\!]^{d,C} \subseteq D_{\langle \sigma, \tau \rangle}$, then $[\![\alpha]\!]^{d,C} = \{c(b) : b \in [\![\beta]\!]^{d,C} \wedge c \in [\![\gamma]\!]^{d,C}\}$

(51) $\llbracket\textit{sorta } \textsc{prec pos } \textit{tall}\rrbracket^{d'}$

$$= \lambda x \exists d \left[\begin{array}{l} d \prec \textbf{standard}(\llbracket\textsc{prec pos } \textit{tall}\rrbracket) \\ \wedge \exists d' \left[\textbf{tall}(d')(x) \wedge d' >_d \textbf{standard}(\llbracket\textit{tall}\rrbracket)\right] \end{array}\right]$$

This asserts that there's a degree $d$ slightly lower than the standard for $\llbracket\textsc{prec pos } \textit{tall}\rrbracket$, another degree $d'$ that exceeds the standard for being tall in the context in the context to a degree of precision $d$, and that $x$ is $d$-tall.

## 4.5 Summary

To summarize:

- *Sorta* increases the amount pragmatic slack available by lowering precision.

- This has different effects across categories.
  - In the verbal and nominal domains, where the degree of precision affects whether a function resembles another function via $\approx$, there's a halo of alternatives to choose from.
  - In the adjectival domain (or more precisely, DegP), the degree of precision affects a new degree of precision parameter on $>$ that determines when $>$ is defined.

- This amounted to characterizing at least two sources of imprecision: the metalinguistic imprecision with $\approx$ and the scalar imprecision with $>$.

- Pragmatic slack is afforded by using a degree of precision less than the contextually defined standard degree of precision.

- This required that **standard** be generalized to degree scales over the dimension of precision.

# 5 Discussion

## 5.1 Scalar vs. epistemic vagueness

Sauerland and Stateva (2007) argue for two types of vagueness, scalar and epistemic vagueness.

- Argue that certain approximators deal with vagueness of one form or the other.

- Different sources for this vagueness.

- Scalar vagueness from granularity functions associated with scalar predicates. Modifiers specify how coarse or fine-grained a granularity function is used.

My approach follows theirs in some ways.

- Multiple types of imprecision: metalinguistic ($\approx$) versus scalar ($>_d$).

- A parameter on the interpretation function provides a composition hook into imprecision.

- Imprecision is lexically encoded. Lexical items specify how they are imprecise.

But, an important difference: a single mechanism throughout, the degree of precision parameter on $\llbracket.\rrbracket$.

More work needed to determine just how my proposal and Sauerland and Stateva's relate to each other.

## 5.2 Where do alternatives come from?

What are the alternatives to *swim*?

- The alternatives for *swim* were illustrated with $\{\textbf{swim}, \textbf{float}, \textbf{wade}, \ldots\}$ in the derivation in (36).

- This is potentially misleading. The alternatives are *functions that resemble* **swim**, whatever those may be.

- These alternatives aren't necessarily other lexical items (and perhaps shouldn't be).

That the alternatives aren't other lexical items contrasts with other focus-sensitive operators such as *only*.

(52)  a. Suzy sorta jogged.

  b. Suzy only jogged$_F$.

(53)  a. John sorta kicked the ground.

  b. John only kicked$_F$ the ground.

For the (b) examples, where *only* is used and focus is on the verb, the alternatives seem to naturally include only other lexical items (*Suzy only jogged, not ran*). But, for the (a) cases, the alternative doesn't seem to need to be represented by another lexical item.

## 6   Conclusion

The lexical semantics of *sorta*:

- *Sorta* affects imprecision by lowering the degree of precision.

- For verbs and nouns, this has the effect of widening the halo. *Sorta* picks a function from this widened halo, which models how *sorta* relaxes entailments.

- Verbs and nouns are not truly gradable when used with *sorta*, but become gradable through the application of the PREC typeshift.

- For degree constructions, the effect is to widen a halo of degrees. This halo is related to the degree of precision, which *sorta* gets access to here via PREC.

- When a degree is within the halo of degrees, it's impossible to compare it with another degree. This models the weakening of entailments with *sorta* in certain degree constructions.

- Benefit: across categories, *sorta* affects imprecision.

This shed some light on how the grammar is structured:

- Linguistic expressions are parameterized to degrees of precision. The degree of precision lives on the interpretation function, where lexical items can use it in different ways.

- Some lexical items choose to use it to specify what their imprecision alternatives are like, via ≈.

- Others use it to specify how they deal with imprecision internally.

- This entails at least two types of imprecision: metalinguistic imprecision and scalar imprecision.

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