

Hillary Clinton is not Mitt Romney rich: Nouns modifying degree and dimension of adjectives¹

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Abstract. In loose English speech, speakers can be observed to use nouns to modify adjectives. This paper explores the four readings which this construction can attain, associated with four types of parameters typically associated with adjectives: degrees, judges, comparison classes, and dimensions. A formal analysis is put forth that derives all four phenomena by recentering pragmatic halos around the modifying noun.

Keywords: adjectives, degree, dimensions, comparison class, equative, alternatives.

1. Introduction

Consider the sentence in (1).

- (1) Hillary Clinton is rich, but not Mitt Romney rich.

Mitt Romney rich is indicative of a construction that seems unique to varieties of English, where a noun phrase modifies the meaning of the following adjective. *Mitt Romney rich* can be ambiguous between several different readings.

- (2) a. How rich is Hillary Clinton?
b. Does Hillary Clinton care about poor people?
c. Mitt Romney's only inviting rich people to his birthday party, did he invite Hillary Clinton?

As an answer to the first question, (1) obtains the DEGREE READING: *Mitt Romney rich* means something similar to *as rich as Mitt Romney*. The second question obtains a DIMENSION READING, *Mitt Romney rich* means something like *rich in the way Mitt Romney is*. The third reading is a JUDGE READING, similar to *is considered rich by Mitt Romney*. A fourth reading is more difficult to obtain with the sentence in (1), but is more apparent in (3).

- (3) They are rich, of course [. . .], but not *New York City* rich.

Here we obtain a COMPARISON CLASS READING, *New York City rich* means something like, *rich for someone in NYC*.

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These four readings correspond to four aspects of adjectives that can be context dependent; the scale of the adjective (see Solt, 2016; Sassoon, 2010; Kennedy, 2013), the judge argument (Lasersohn, 2005; Stephenson, 2007; Kennedy, 2013; Bylinina, 2014), the standard degree, and the comparison class on which that standard is set. In section 2, I will discuss the data in question, exploring properties of each reading. In section 3, I will propose an analysis using pragmatic halos to account for all the types with a uniform semantics. Finally, in section 4 I conclude.

2. Basic data

Here, I call these constructions *reference modifiers* (RMs), in two senses. Bolinger (1967) previously used *referent vs. reference modification* to distinguish between attributive adjectives that modify what the noun refers to (*huge* in (4a)), and those that modify the noun itself (*Asian* in (4b))—this distinction is basically the distinction between intersective and nonintersective interpretations of adjectives (Partee, 1995).

- (4) a. Those are huge elephants. ([[huge elephant]]=**huge**∩**elephant**)
 b. Those are Asian elephants. ([[Asian elephant]]≠**Asian**∩**elephant**)

Whether all RMs of the form referred to in this in paper modify reference rather than referent is a question that cannot be answered without a theory of the semantics of the modifier itself, but we can note that some readings (particularly dimension readings) can be interpreted in clearly non-intersective ways. *Osama Bin Laden famous* can refer to a scale of how derived from or related to acts of terror one's fame is, a scale that cannot be a referent of an unmodified *famous*. In the sentence (5), the studios are still able to hire individuals that are more famous than the actor, but not those who are more *Osama Bin Laden famous*.

- (5) After the scandal, the actor was too *Osama Bin Laden famous* to hire. ↗ too famous to hire.

More simply, I call these RMs because the majority of these constructions modify by referencing an individual or a prototype that must be known to the interlocutors; often a figure or event from pop culture. Now we turn to some of the basic facts of RMs.

2.1. Modifier-adjective positive requirement

Only certain readings of RMs require that what the modifier is referring to be in the positive extension of the adjective. Roughly, if in some context a RM *Modifier Adjective* (*Modifier*=Mitt Romney, *Adjective*=rich) is grammatical, *Modifier is Adjective* must be true in that context. This is unsurprisingly untrue for the JUDGE READING (6), as expected, because judge RMs denote the positive extension of an adjective as judged by the referent of the modifier; the example in (6) gets the judge reading particularly well because this is the only reading where

the referent of the modifier can be incompatible with the scale discussed.²

- (6) The salsa isn't spicy, but it is *my dad spicy*.

The Comparison Class reading does require compatibility with the adjective, but is fully grammatical even if the prototypical member of the comparison class referred to by the modifier does not satisfy the adjective in its positive form. Consider (7): one would be hard pressed to find a context where mansions were cheap, but we are able to get a comparison class reading where the house in question is cheap for a mansion. This reading, like *for*-phrases (Kennedy, 2007; Bale, 2008; Solt, 2011), does require that the subject is a member of the comparison class.

- (7) It isn't cheap, but it is *mansion cheap* and if you want a mansion that's as good as you're gonna get.

The degree reading does require that the positive sentence to be true to be grammatical, consider (8). This sentence does not work unless we are in some context where snails are considered fast.

- (8) #The animal was *snail fast*.

Further, I argue that the dimension reading requires this as well.³ The sentence in (9) can obtain a meaning where the person in question is shorter than the speaker's threshold for *tall* but is a politically imposing figure, much like Napoleon (perhaps *tall in spirit*). While we may not consider Napoleon *tall*, in order to get this sort of reading, it is crucial that under some wordplay and metaphorical meaning Napoleon is "politically tall". For a non-tall individual with less culturally relevant jokes made comparing their physical height and their success or imposingness, this does not seem to work. Though James Madison is considered the father of the American Constitution, I have much more difficulty creating *James Madison tall*, as he was a short man.

- (9) They're not tall but they're *Napoleon tall*.

The different sorts of relationships required between the modifiers and the adjectives are summed up in the table in (10).

- (10) Required relationship between referent of modifier and scale of adjective

Reading	Judge	CC	Degree	Dimension
Compatible	✗	✓	✓	✓
Positive	✗	✗	✓	✓

²Of course, a context could exist where we have considered the flavor of our family members, in which case other readings of this sentence would be possible.

³However, it seems as if a subtype of dimension readings do not require it. In order to understand *tall in the way Napoleon is tall*, Napoleon must be tall in some way, but *I'm sick, but I'm blood pressure healthy* clearly does not require *blood-pressure* to be *healthy* but is grabbing a dimension directly.

2.2. Degree RMs

The degree reading of an RM (11a) can often be paraphrased as an equative (11b).

- (11) a. Mary is *Usain Bolt fast*.
 b. Mary is as fast as Usain Bolt.

However, these constructions differ in two important ways: a degree RM is more imprecise than an *exactly* reading of the equative; and the degree RM can create indirect comparisons using implicit comparison classes.

2.2.1. Implicit comparison classes

Unlike the equative, the degree RM can make indirect comparisons—comparing positions of the individuals on their relative scales—without any overt reference to comparison classes. While the typical equative (and comparative by parallel) construction involve comparison of individuals based upon their degrees on the same scale, sentences like (12) seem to compare individuals based on their degrees on distinct (but often related scales).

- (12) a. Marie Curie is smarter than Marilyn Monroe is beautiful. (Modified from Bale, 2011)
 b. John is taller for a man than Mary is for a woman. (Bale, 2011)
 c. Mary is as fast for a middle schooler as Usain Bolt is for an Olympian.

Several recent proposals attempt to explain these indirect equatives (Bale, 2006, 2008, 2011; Sassoon and van Rooij, 2016). Bale (2008) shows that these do differ from metalinguistic comparisons (13) (Embick, 2007; Morzycki, 2011) due to several distributional realities, notably, metalinguistic comparatives have a strong preference (if not a requirement) for the *more* morpheme over the *-er* morpheme.

- (13) Seymour is more intelligent than devious. (Bale, 2011)

Degree RMs, like (11b) are able to be true in the case that the indirect comparison seen in (12c) is true, which is not true for the equative without explicit comparison classes, (11b). While the equative can express such a meaning in an exaggerative context, in O'Hara (to appear) I argue that the Degree RM is not achieving these kinds of readings through exaggeration in the same way, as evidenced by the contrast in (14): the literal meaning of *Usain Bolt fast* is the meaning that was used in the first sentence, so *well not literally* contradicts the prior sentence.

- (14) Mary is {as fast as Usain Bolt/#*Usain Bolt fast*}. Well not literally. . .

In these comparison class indirect equatives, somehow the relative position of an individual within their own comparison class is being compared. Therefore, the realities of how we find an individual's relative position in their comparison class is rather important. Bale (2008) handles this by deriving a scale from a linear order of equivalence classes formed by a relation

like *x is as ADJ as y*. Bale defines a universal scale where the equivalence classes of individuals from a given comparison class are evenly spaced.

Thus, if our comparison class for Mary involves six middle school runners, of whom Mary is the fastest, and no two runners are of equal speed; Mary is associated to the maximal possible universal scale degree ($d_{\frac{6}{6}}$), the next runner is associated with $d_{\frac{5}{6}}$ and so on, with the slowest runner being associated with degree $d_{\frac{1}{6}}$. Since Usain Bolt is the fastest man in the world, regardless of the size of the comparison class he is being considered in, Usain is going to be associated to the maximal degree, $d_{\frac{n}{n}}$. Therefore, Mary and Usain Bolt have the same degree on the universal scale, d_1 .

However, this approach fails to capture a few intuitions present in indirect comparisons, as noted by Wellwood (2014). Consider Katie Ledecky, American Olympian who finished the 800m freestyle at the 2016 Olympics over a pool length ahead of her opponents. If Mary won her middle school race, but not so significantly, (15) is not as true.

(15) **F** Mary is as fast for a middle schooler as Katie Ledecky is for an Olympian.

Therefore, it seems not only the linear order of the equivalence classes must be preserved when comparing disparate scales, but also the distance between degrees. Sassoon and van Rooij (2016) handle this by formulating the scale *fast for a middle schooler* as the ratio from an individual's speed's deviation from the norm for middle schoolers, and the standard deviation for a middle schooler, (16).⁴

(16) $[[\text{fast for a middle schooler}]] = \lambda x : [[\text{mdschl}]](x) \cdot \frac{(\mu_{\text{fast}}(x) - \text{norm}(\mu_{\text{fast}}, [[\text{mdschl}]])}{\text{std}(\mu_{\text{fast}}, [[\text{mdschl}]])}$

This formulation allows a finer comparison of diverse scales, allowing us to get the correct truth conditions for (15). Under such an interpretation, since Katie Ledecky surpasses the norm for her comparison class by a number of standard deviations, but in our context Mary surpassed the norm by less standard deviations for her comparison class. However, an additional issue could arise: Say Katie Ledecky surpassed the norm of her comparison class by exactly 5 standard deviations, and each standard deviation is relatively large, resulting in a change of race time by about a second. It is possible that Mary could also surpass the norm of her class by 5 standard deviations, but the standard of deviation for her class could be orders of magnitude smaller than Katie Ledecky's. In this case, we note that Katie Ledecky notably finishes before everyone else, but Mary finishes her race in a photo finish with all of the other members of her race, though Katie Ledecky would have the same degree of *fast for an Olympian* as Mary has for *fast for a middle schooler*. This seems potentially problematic, but it seems possible that the difference between these two situations is whether or not the deviation from the norm is observable to the speakers. Standard deviation (a purely mathematical/statistical measure) might not be sufficient.

⁴Solt (2011) uses median absolute deviation in a similar way while trying to define the positive construction.

Unlike the equative, the degree RM does not require an overt comparison class (through a *for*-phrase) to get these indirect, relative readings. I argue the difference here derives from the different ways the degree of the standard (i.e. that which the subject is being compared to, recently Katie Ledecky) is derived. The denotation of the equative involves the calculation of the maximal degree on some scale denoted by the adjective (potentially relativized by comparison classes) which the standard surpasses (17). In (17), $S_{\text{FAST},C}$ represents some relevant scale related to *fast* for some comparison class C .

$$(17) \quad [[\text{as fast as Katie Ledecky}]] = \lambda x. \max(\lambda d. S_{\text{FAST},C}(d, x)) = {}^5 \max(\lambda d'. S_{\text{FAST},C'}(d', KL))$$

However, since by the very nature of an equative (or a comparative) we are comparing the individuals in question, there is a great preference to use a comparison class that includes both individuals; making an indirect comparison unlikely without overt morphology.

Degree RMs do not have clauses so rather than deriving the degree in the way an equative does, the RM simply selects some degree that is somehow associated to the standard and the adjective. The most salient degrees for a given individual will likely be in their most common comparison class; for Katie Ledecky, it is with the swimmers she raced against at the Olympics, so Mary as a middle schooler will not be part of the comparison class, and will therefore select a different comparison class that is contextually appropriate for her.

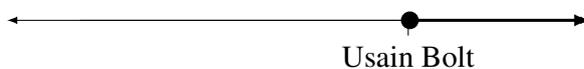
2.2.2. Imprecision

The equative is said to have two readings, the strong *exactly-as* reading, and the weak *at least as* reading. The degree RM seems to quantify over a different set of degrees than either of these readings.

- (18) a. STRONG EQUATIVE (*exactly*) as fast as Usain Bolt



- b. WEAK EQUATIVE (*at least*) as fast as Usain Bolt



- c. DEGREE RM *Usain Bolt fast*



The lower bound is apparent in sentences like (19); there must be some degrees of speeds slower than Usain Bolt's speed that still qualify as *Usain Bolt fast*.

- (19) a. How fast is Andre de Grasse?

⁵Here I denote an *exactly* reading of an equative, following Rett (2008) that this is basic; this relation would be \geq if an *at least as* reading is taken as basic (Schwarzschild, 2008). Neither are crucial for this point.

- b. Andre de Grasse is *Usain Bolt fast*, but he's not as fast as Usain Bolt.

Here, speakers may paraphrase *Usain Bolt fast* as being in the same speed tier as Usain Bolt, allowing for Andre de Grasse to have a lower speed than Usain Bolt, but still be *Usain Bolt fast*. This is actually a fact of the semantic relationship of *Usain Bolt fast* to *as fast as Usain Bolt*, rather than a pragmatic force trying to derive meaning from the sentence. If there was not a difference in semantics between the two phrases, (20) should be able to capture the same meaning, which it cannot.

- (20) #Andre de Grasse is as fast as Usain Bolt, but he's not *Usain Bolt fast*.

Further, we can see that there is in fact an upper bound on RMs unlike the *at least as* reading of the equative. Yao Ming, the former NBA player, is 7'6" tall. Given the same context, there are certain heights, such that someone is not *Yao Ming tall* but they are *as tall as Yao Ming*.

- (21) a. Speaker A: My friend Cody is super tall!
 b. Speaker B: Are they as tall as Yao Ming?
 c. Speaker A: Yes, in fact they're 15 ft tall!
- (22) a. Speaker A: My friend Cody is super tall!
 b. Speaker B: Are they *Yao Ming tall*?
 c. Speaker A: ??Yes, in fact they're 15 ft tall!

This arises from the same sense speakers have that the RM, *Yao Ming tall* refers to a tier of heights around Yao Ming's height. The RM gets a reading closer to *about as tall as Yao Ming* or *around Yao Ming's height*. The fact that this paraphrases to *about* suggests that the RM has a less precise reading than the equative when being evaluated upon the same scale. This is not a surprising result; the RM is a more marked construction than the equative (it is typologically rare, and rare within (particularly formal) English; the ambiguity of the many possible readings also makes the processing of RMs difficult), and marked constructions tend to have marked meanings, which in this case is the weaker, less precise meaning (Horn, 1984).

2.2.3. Distribution of Degree RMs

A final noteworthy property of Degree RMs is their distribution with overt degree morphology. Like the equative, this construction is unable to appear below other degree quantifiers (23)

- (23) a. #Mary is very/too/sorta Usain Bolt fast.
 b. #Mary is more/as Usain Bolt fast than/as Jill.

On the other hand, degree RMs are available above gradable degree phrases, like *more* and *too* phrases.

- (24) a. Man be glad you're not Yao Ming—You're too tall for this room, but you're not (Yao Ming/way) too tall for this room.

- b. You're taller than Kevin, but you're not Yao Ming taller than Kevin, so the picture doesn't look too funny.

These distributional facts show that Degree RMs have the same distribution as degree quantifiers like the comparative, providing evidence that this construction is also a degree quantifier.

2.2.4. Summary of Degree RMs

This section has shown evidence that degree RMs are able to quantify over degrees in a way that is somewhat different than the equative, or any other degree quantifier. Crucially, Degree RMs are able to capture indirect comparisons without any overt comparison class phrase. When Degree RMs do represent direct comparisons, they tend to be interpreted less precisely.

2.3. Judge RMs

While the degree of gradable adjectives is the most studied argument, it is not the only one available to adjectives. The degree which certain items receive on many adjectival predicates is dependent upon the *judge* or the individual doing the evaluation. Predicates of Personal Taste (Lasersohn, 2005) like *fun* are the most clear case—it's more surprising if two people ranked all the rides at an amusement park in order of funness exactly the same than if they disagree somewhere. This can be observed via faultless disagreement (Kölbel, 2003). In (25), the speakers do not contradict each other, because they are differing on the contextually determined judge of funness, rather than anything greater.

- (25) a. The roller coaster is more fun than the merry-go-round.
b. No, the merry-go-round is more fun than the roller coaster.

This does not remain true, if the judge is overt, marked by either a *for* or a *to* phrase.

- (26) a. The roller coaster is more fun *for/to* me than the merry-go-round.
b. #No, the merry-go-round is more fun *for/to* you than the roller coaster.

Thus, predicates of personal taste require a judge in order to be evaluated—whether this judge is supplied by a judge index of evaluation (Lasersohn, 2005) or as a thematic argument (Stojanovic, 2007; Bylinina, 2014), is not important for our purposes. This judge can be targeted by a Judge RM.

- (27) The roller coaster is more *me fun* than the merry-go-round.

Subjectivity is not limited to predicates of personal taste; adjectives not associated with objective physical scales, called evaluative by Bierwisch (1989), can be equally subjective. These adjectives include *smart*, *healthy*, *lazy*.

- (28) *Given Paulo is recovering a full body cast post-accident; and Daniel smokes 20 cigarettes a day and mostly eats fast food.*
- a. Paulo is healthier than Daniel.
 - b. No, Daniel is healthier than Paulo.

Sassoon (2013); Bylinina (2014) argue that the source for this subjectivity can come from the multidimensionality of *healthy*; *healthy* quantifies over a variety of scales (blood pressure, mobility, amount of aortic plaque, etc.), and which scales receive which priority/weight is dependent on the context and the speaker.

Unlike predicates of personal taste, *for* and *to* phrases cannot overtly supply a judge argument here, without prosodic breaks setting off the phrase.⁶ However, verbs like *find* can supply the judge here.

- (29) a. I find Paulo healthier than Daniel.
b. Paulo is healthier, to me, than Daniel.

A Judge RM is able to capture these subjective versions of these evaluative adjectives as well.

- (30) a. I don't care what the doctor says, Paulo is more *me healthy* than Daniel.

Finally, even simple objective unidimensional adjectives like *tall* or *rich* appear to be judge-dependent in the positive.

- (31) a. Hillary Clinton is rich.
b. No, Hillary Clinton is not.

This seems to simply be an issue of where the standard degree supplied by the null POS morpheme, lies relative to Hillary Clinton's degree of wealth. Since this is based on the contextual standard degree, this sort of judge dependence is available in the positive, *very* constructions, and *sorta* constructions, but not in more objective constructions, like the comparative. Again, speakers differ on whether overt *to*-phrases can supply the judge here, but verbs like *find* definitely can.

- (32) a. I find Hillary Clinton rich.
b. Hillary Clinton is rich to me.

The Judge RMs are again able to supply the judge for these sort of constructions, given appropriate context.

- (33) *Given Mitt Romney is inviting only people he considers rich to a party.*
a. Hillary Clinton did not get an invite. She's rich, but not *Mitt Romney rich*.

⁶Speakers may differ in acceptability of these phrases in these contexts; Bylinina (2014) seems to suggest that these comma intonation *for*-phrases are only possible sentence initially; however, several consultants and myself allow them in a variety of positions; and even sometimes without such a clear intonation contrast from with predicates of personal taste.

Exactly how the judge-dependence for each of these types of constructions may differ (see Bylinina, 2014), but the Judge RMs seem to be able to capture these readings regardless.

2.4. Comparison Class RMs

Particularly in the positive construction, comparison classes are also a critical part of evaluating adjectives. Identifying the standard necessarily involves identifying the set which the individual is being compared to.

(34) The rock climbing wall in Maggie Daley Park is tall.

Whether the rock climbing wall in Maggie Daley Park in Chicago is considered tall, depends on what it is being compared to. At 40 ft tall, it is one of the tallest things in Maggie Daley Park, it is taller than the average rock climbing wall, but it is also not very tall in comparison to things in downtown Chicago. Depending on which class we use—things in MDP, rock climbing walls, or things in downtown Chicago—the height at which things are considered tall is different, perhaps 20ft, 35ft, and 600ft. This comparison class can be made explicit using a *for*-phrase.

(35) The rock climbing wall in MDP is tall for {a thing in the park/a rock climbing wall/a thing in Chicago}

These comparison classes can also be overtly noted using a Comparison Class RM.

(36) The rock climbing wall isn't *thing in Chicago tall*, but it is *rock climbing wall tall*.

As discussed in Section 2.2.1, comparison classes are available in degree constructions other than the positive as well. In indirect comparatives, overt comparison classes can be used to compare relative difference from the norm for each class as in (37). Comparison Class RMs may also be available, though they feel degraded (and might be metalinguistic) here (38).

(37) Usain Bolt is faster for an Olympian than Mary is for a child.

(38) (?)Usain Bolt is more *Olympian fast* than Mary is *child fast*.

2.5. Dimension RMs

Where the other three types of RMs interact with adjectives in ways that resemble relatively well-studied concepts, the degree, judge, and comparison class; the dimension RMs interact with a less well-understood aspect of adjectives: the scale upon which they are evaluated. Morzycki (2012) argues that there many adjectives encode several different dimensions in their lexical encoding. In (39), *big* seems to be being evaluated over distinct senses.

(39) a. The US is bigger than Canada (Population)

- b. Canada is bigger than the US (Area)

(40) **dimensions(big) = {size-by-population, size-by-area, size-by-importance, ... }**

Somehow, the dimensions the adjective is evaluated upon must be selected by context, Morzycki suggests that degree quantifiers like POS existentially quantify over these dimensions: something is big in the case that some dimension of big exists so that the thing surpasses the standard on that dimension.⁷ This set of dimensions clearly must be able to be contextually restricted: when speaking about land, the population dimension is not selectable.

As discussed in the section on Judge RMs, Sassoon (2007, 2013) discusses a variety of adjectives that seem to quantify over the dimensions in a different way than *big*. In order to be *healthy*, one must be healthy on all relevant dimensions; i.e. blood pressure, mobility, etc.

Thus many adjectives have multiple dimensions available to them. Specific dimensions can be picked out overtly using a *with regard to* phrase.

- (41) a. Japan is bigger with regard to population than Canada.
b. Tara is healthier with regard to blood pressure than I.

RMs are capable of accomplishing the same thing.

- (42) a. Japan is more population big than Canada.
b. Tara is more blood pressure healthy than I.

Both of the above constructions are able to shift the dimension of an adjective by referencing the dimension in question directly; but the dimension can also be restricted in a different way by *like* or *in the way* phrases, or Dimension RMs.

- (43) a. Nigeria is big like Japan, not big like Canada.
b. Nigeria is big in the way Japan is, not the way Canada is.
c. Nigeria is *Japan big*, not *Canada big*.

Given appropriate context, *big like Japan* means the same thing as *big with regard to population*. However, these constructions seem to be capable of picking out any dimension of the adjective which the modifying individual has a salient (usually large) degree on.

In fact, it is possible in this way to refer to dimensions that are not necessarily quantified over by the adjective typically. For an example, consider that Yao Ming and Andre the Giant were both

⁷Some difficulties might arise for such an account. I have checked with several other speakers, who seem to share the intuition that while (39a) seems to work, (i) is less licit out of the blue, contra to what would be expected if *big* here was simply selecting the **size-by-population** dimension.

- (i) ?Japan is bigger than Canada.

This suggests somehow the area dimension has some sort of primacy, only allowing the population dimension out of the blue if the area dimension is ambiguous or at least close.

exceptionally tall men, but Yao Ming is skinner and Andre the Giant is broader. If presented with a giraffe and an elephant of the same height, speakers have little difficulty identifying who is *Yao Ming tall* and who is *Andre the Giant tall*. (or *tall like Yao Ming*, or *tall in the way Yao Ming is*)

- (44) a. The giraffe is *Yao Ming tall*.
b. The elephant is *Andre the Giant tall*.

Tall is typically thought of as a prototypically monodimensional measurable adjective. The scale over which it is evaluated is typically the same in all contexts: height. In this context, *Yao Ming tall* paraphrases to something like *tall in a slender way*. We can see that this slenderness dimension is not quantifiable over by *tall*; we are unable to access it using a *with regard to* phrase (45).

- (45) # The giraffe is tall with regard to slenderness.

Yet, there are strong restrictions to which sorts of dimensions can be selected here. The dimension must be properties of the Yao Ming's tallness, not simply properties of Yao Ming. Yao Ming is rich and successful, and even given an equally tall but poorer person: Lonnie, *Yao Ming tall* cannot mean tall and rich, and *Lonnie tall* cannot mean tall and poor.

The distinction here comes from other evidence about what dimensions are part of the lexical encoding of *tall*. While plain *tall* does not allow paraphrases of *tall in a slender way* in the same way *healthy* can be paraphrased as *healthy with regards to blood pressure*, evidence that *tall* encodes some information about slenderness, rather than wealth is available from prototypical uses of *tall*.

First consider two cups of the same height, one slender and one as wide as it is tall. If *the tall cup* is referred to, speakers identify the slender cup as *the tall cup*. While slenderness is not typically part of the scale quantified over when identifying *tall*, it can be made accessible here. Wealth is not available in this way; given two people of the same height, one clearly rich, and one clearly poor, speakers will be left confused by reference to *the tall person*.

The second evidence comes from slack regulators and other constructions which strengthen utterances, or make them more prototypical. One of these (which we will return to later, as it seems somewhat related to RMs), referred to as lexical cloning, contrastive focus reduplication, or identical constituent compounding, where a word or phrase is copied in order often achieving a more prototypical meaning (Ghomeshi et al., 2004). Given a building that is 300 ft tall, but 2000 ft long and wide, we can imagine the sentence in (46a). The same sort of result can be seen with typical intensifying slack regulators like *exactly*, *precisely* and *really*.

- (46) a. I guess that building is tall, but it's not *TALL* tall.
b. That building is not *really/exactly/precisely* tall.

The prototypical tall thing's (or perhaps building here) height exceeds its other dimensions,

allowing for a slenderness dimension to be accessed here. Thus it seems, somewhere in the lexical encoding these additional dimensions are available. It seems notable here that though prototypically tall things are slender, the polarity of this slenderness dimension is not fixed in the ways the dimensions of *big* and *healthy* are. *Tall in a slender way* and *tall in a broad way* are both valid, but *big in a populous way* and *healthy in a physically fit way* seem less strange than their counterparts *big in a unpopulous way* and *healthy in a physically unfit way*. If these counterparts do exist, they refer to something like *healthy even though very unhealthy in this one dimension*, suggesting individuals must be very healthy on the remaining dimensions to make up for that. It is possible that even *tall in a broad way* is defined this way, as *tall even though not slender*, evidence from this arises from the fact that it is easier to generate *tall in a slender or skinny way* from a reference that is tall in a skinny way than to generate *tall in a broad way* without defining it in opposition to *tall in a slender way*: *telephone pole tall* is easy to understand, in comparison to *Great Wall of China tall*.

These dimension RMs are able to appear below degree morphology, and seem incompatible above degree morphology.

- (47) a. The giraffe is more *Yao Ming tall* than the elephant.
 b. #The giraffe is *Yao Ming taller* than the elephant.

A worthwhile question is whether or not *Yao Ming tall* is truthfully gradable, or if this is a metalinguistic comparative in (47a). Exactly how to probe this distinction seems difficult: most of the diagnostics that differentiate metalinguistic and true comparatives (Morzycki, 2011) do not occur here. McCawley (1998) notes that only metalinguistic comparatives allow displacement of the comparative morpheme, which does not seem to be possible here.⁸

- (48) a. Your problems are legal more than financial.
 b. The giraffe is *Yao Ming tall* more than the elephant.

2.6. Data summary

All four types of RMs can appear with a variety of adjectives, more widely than might be expected: Degree RMs can appear with typically gradable predicates like *tall*, but they are also available for adjectives with minimal or maximal standards (Kennedy and McNally, 2005) like *coked-up businessman awake* or *arrow straight*. Judge RMs can appear with predicates of personal taste, but also multidimensional adjectives, and almost all adjectives in a positive construction. Comparison Class RMs are equally able to appear seemingly with any gradable adjective. Finally, dimension RMs appear with conventionally multidimensional adjectives like

⁸However, it may be that this property of comparing predicates rather than subjects, identifying metalinguistic comparatives that compare individuals seems more difficult, and I'm not certain works here; seeming to get a different frequency sense in (ib).

- (i) a. The coffee there is more coldbrew than when I make it.
 b. (?)The coffee there is coldbrew more than when I make it.

healthy, ambiguous adjectives like *big* but also a variety of adjectives that have been typically thought of as simple and unidimensional like *tall*.

3. Analysis

In this section, I propose a uniform semantics for RMs that can handle all of these meanings. Each type of RM restricts the meaning of the predicate to a meaning more closely associated with the reference. Here we will see this can be captured by recentering the pragmatic halo (Lasnik, 1999) denoted by the predicate.

Morzycki (2011); Anderson (2016) capture compositional semantic imprecision using pragmatic halos consisting of alternatives (Hamblin, 1973; Kratzer and Shimoyama, 2002). Under this Hamblinized approach, the denotation of an adjective like *tall* is as in (49)

$$(49) \quad \llbracket \text{tall} \rrbracket^{d',C} = \{f_{\langle d,et \rangle} : f \approx_{d',C} \lambda d \lambda x. \mathbf{tall}(d)(x)\}$$

Here, following Morzycki (2011), the $\approx_{d,C}$ relation is a similarity relation, stating that iff $\alpha \approx_{d,C} \beta$, given the similarity scale given in context C , α is similar to β at least to the degree d . Here, the degree of similarity is the contextual degree of precision. Morzycki (2011) and Anderson (2016) make use of this degree (using a typeshift PREC) to capture metalinguistic comparatives (which are argued to be evaluated on the dimension of precision) and precision intensifiers and attenuators. Here rather than manipulating the degree of precision, RMs select one of these alternatives that is best associated with the reference and recenters the halo.

Take *American Football Player healthy*, a dimension RM which seems to select a scale of evaluation of *healthy* that unfortunately prioritizes physical fitness over limiting brain damage. Under Sassoon (2007)'s representation, *healthy* typically denotes universal quantification over the dimensions of health. However, within our pragmatic halo, alternatives that ignore specific dimensions will be available (much like how, as shown by Anderson (2016), *everyone is here* can be uttered by a professor when a few students are missing (p. 23)).

$$(50) \quad \begin{array}{l} \text{a.} \quad \llbracket \text{healthy} \rrbracket^{d',C} = \{f_{\langle d,et \rangle} : f \approx_{d',C} \lambda d. \lambda x. \forall g \in \mathbf{dimension(healthy)} : [g(d)(x)]\} \\ \text{b.} \quad \llbracket \text{healthy} \rrbracket^{.8,C} = \left\{ \begin{array}{l} \lambda d. \lambda x. \forall g \in \mathbf{dim(healthy)} : [g(d)(x)], \\ \lambda d. \lambda x. \forall g \in (\mathbf{dim(healthy)} - \mathbf{brain\ health}) : [g(d)(x)], \\ \lambda d. \lambda x. \forall g \in (\mathbf{dim(healthy)} - \mathbf{cholesterol}) : [g(d)(x)], \\ \text{etc.} \end{array} \right\} \end{array}$$

Given this loose denotation for *healthy*, the RM must simply select the appropriate dimension. This is accomplished using a null operator RM which selects an element of the predicate its modifying that is associated (∞) with the reference.⁹

$$(51) \quad \begin{array}{l} \text{a.} \quad \llbracket \text{RM} \rrbracket^{d',C} = \lambda x_p \lambda S_\tau : \exists s \in S[s \infty_{d,C} x].s \\ \text{b.} \quad \llbracket \text{NFL player RM} \rrbracket^{d',C} = \lambda S_\tau : \exists s \in S[s \infty_{d,C} \mathbf{NFL\ player}].s \end{array}$$

⁹Often this association is the ability of the reference to directly satisfy the predicate, but particularly with judge RMs, this is not possible.

- c. $\llbracket \text{NFL player healthy} \rrbracket^{d',C} = \{f_{\langle d,et \rangle} : f \approx_{d',C} \lambda d. \lambda x. \forall g \in (\mathbf{dim}(\mathbf{healthy}) - \mathbf{BrainHealth}) : [g(d)(x)]\}$

One of the reasons selecting a dimension on more unidimensional adjectives like *tall* seems harder is due to the structure of the pragmatic halos for *tall*. Whereas *healthy* at its most precise universally quantifies across all dimensions of healthiness, the additional dimensions of *tall* are less critically related. The alternative selected by *Yao Ming tall*, of tall in a slender way, is only available in very imprecise readings uses of *tall*. Even given the cups having the same height,

- (52) The skinny glass is sorta taller than the fatter one.

Anderson (2016) argues that *sorta* expands the pragmatic halo of the predicate it modifies, selecting a degree of precision close to but lower than the standard degree of precision. Thus, the degree of precision must be lower to allow the RM to select any nontrivial dimensions. Earlier we saw that these dimensions are stored in the adjective and are also accessed in the most precise and prototypical readings. I claim that these additional dimensions are available as presuppositions to the most precise meaning of *tall*. If something is not saliently skinny enough, we cannot call it *tall*, but even on high level of precision, wide things are not *less tall* than things which have lower degrees of height than them.

- (53) a. #The Pentagon is tall tall.
b. The telephone pole is tall tall.
c. #The telephone pole is more tall tall than the Pentagon

It is not surprising that dimensions referenced in the presupposition of the lexical entry of an adjective are somehow similar to the most precise form of the lexical entry, but it also makes sense that these are less similar than subsets of dimensions like what we explored with *healthy*.

The purpose of the ∞ associated relation appears when we attempt to capture comparison class and judge RMs. Consider *fun*, which as a predicate of personal taste contains a judge argument somewhere in its denotation. I will presume a relativist approach here, but noncritically.

- (54) a. $\llbracket \text{fun} \rrbracket^{d',C,J} = \{f_{\langle d,et \rangle} : f \approx_{d',C} \lambda d. \lambda x. \mathbf{fun}_J(d)(x)\}$

The pragmatic halo here will include functions which are not exactly *fun*—like *exciting*—but will more importantly include *fun* scales that are ordered by different judges. The association function in the RM can note the association of a judge to the function to which they are the judge.

- (55) a. $\llbracket \text{fun} \rrbracket^{8,C,J} = \left\{ \begin{array}{l} \lambda d. \lambda x. \mathbf{fun}_J(d)(x), \\ \lambda d. \lambda x. \mathbf{exciting}_J(d)(x), \\ \lambda d. \lambda x. \mathbf{fun}_{\mathbf{me}}(d)(x), \\ \lambda d. \lambda x. \mathbf{fun}_{\mathbf{you}}(d)(x), \\ \text{etc.} \end{array} \right\}$

$$b. \quad \llbracket \text{me fun} \rrbracket^{d',C,J} = \{f_{\langle d,et \rangle} : f \approx_{d',C} \lambda d. \lambda x. \mathbf{fun}_{\text{me}}(d)(x)\}$$

Reference to the judge is made again in the positive construction when setting the standard. Assuming a denotation as follows for the POS morpheme, if the RM attaches above the POS morpheme, it can select the correct form.

$$(56) \quad \begin{array}{l} a. \quad \llbracket \text{POS} \rrbracket^{d',C,J} = \lambda G_{\langle d,et \rangle} \lambda x. \exists d [G(x)(d) \wedge d! > \mathbf{norm}_J(G)] \\ b. \quad \llbracket \text{POS tall} \rrbracket^{8,C,J} = \left\{ \begin{array}{l} \lambda x. \exists d [\mathbf{tall}(d)(x) \wedge d! > \mathbf{norm}_J(\mathbf{tall})], \\ \lambda x. \exists d [\mathbf{tall}(d)(x) \wedge d! > \mathbf{norm}_{\text{me}}(\mathbf{tall})], \\ \lambda x. \exists d [\mathbf{tall}(d)(x) \wedge d! > \mathbf{norm}_{\text{you}}(\mathbf{tall})], \\ \lambda x. \exists d [\mathbf{tall}(d)(x) \wedge d! > \mathbf{norm}_{\text{Mitt Romney}}(\mathbf{tall})], \\ \text{etc.} \end{array} \right\} \\ c. \quad \llbracket \text{Mitt Romney POS tall} \rrbracket^{d',C,J} = \\ \quad \{g_{\langle e,t \rangle} : g \approx_{d',C} \lambda x. \exists d [\mathbf{tall}(d)(x) \wedge d! > \mathbf{norm}_{\text{Mitt Romney}}(\mathbf{tall})]\} \end{array}$$

This predicts that *Mitt Romney rich* is ungradable, and therefore incompatible with degree morphology. This is caused by putting the judge dependence in the positive morpheme: if that assumption is false, judge dependence must be lower and possible with RMs everywhere it is possible with overt *for* and *to* phrases. It is difficult to probe for data that tests this in particular because on these adjectives judge-dependence does not change the ordering of the degrees but only the location of the norm, making *more Mitt Romney rich* and *more rich* coextensive.

Comparison classes work the same way; reference to comparison classes is part of the positive morpheme, (or perhaps somewhere lower in order to capture indirect comparisons, see Sassoon and van Rooij, 2016). Regardless, some alternatives will be something like “has a degree on this scale surpassing the standard for comparison class C on this scale”, and the comparison class RM simply selects the alternative with the appropriate comparison class.

Degree RMs are less obvious. Consider the denotation of a gradable predicate, like *fast*. This is made up of a set of alternatives, which are each sets of predicates given different degrees (57b).

$$(57) \quad \begin{array}{l} a. \quad \llbracket \text{fast} \rrbracket^{8,C,J} = \left\{ \begin{array}{l} \lambda d. \lambda x. \mathbf{fast}(d)(x), \\ \text{etc.} \end{array} \right\} \\ b. \quad \lambda d. \lambda x. \mathbf{fast}(d)(x) = \left\{ \begin{array}{l} \lambda x. \mathbf{fast}(\mathbf{5mph})(x), \\ \lambda x. \mathbf{fast}(\mathbf{6mph})(x), \\ \text{etc} \end{array} \right\} \end{array}$$

Here, the RM selects an element from this set rather than the set of alternatives. A degree that is associated with an individual like Usain Bolt may be his most famous speed (27.7 mph), or using a less measured set of degrees, it could be something like a very high degree. This ambiguity between the exact speed and the relative speed is what allows the ambiguity between direct and indirect comparisons discussed previously. The set of alternatives for *Usain Bolt fast* include a variety of degree near but not equal to Usain Bolt's degree of speed.

$$(58) \quad a. \quad \llbracket \text{Usain Bolt fast} \rrbracket^{d',C,J} = \{f_{\langle e,t \rangle} : f \approx_{d',C} \lambda x. \mathbf{fast}(\mathbf{27.7mph})(x)\}$$

4. Conclusion

Thus, RMs can be formulated as recentering pragmatic halos, capturing all the four readings discussed in this paper. This approach is able to capture these constructions, but also should be extendible to a variety of similar seeming constructions with different categories of predicates. The lexical cloning construction (*salad salad* or *tall tall*, Ghomeshi et al., 2004) would be a subtype of this: the alternative most associated with the predicate itself would be the most precise alternative, and this semantically vacuous recentering of the halo could cause a change in the degree of precision. Other related forms are: Judge RMs on the precision variable (59a), dimension RMs on nouns (59b) or verbs (59c). Further work must be done to investigate the full range of RMs in English.

- (59) a. *Given Sam is known to be imprecise*: Is everybody there, or is it just *Sam everybody*?
 b. The biggest bird is like an *ostrich bird* not a *eagle bird* so it can't fly.
 c. My son can swim, but he can only *baby swim*, so he's not going out on a boat.

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