Metalinguistic Comparison in an Alternative Semantics for Imprecision

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Abstract   This paper offers an analysis of metalinguistic comparatives such as *more dumb than crazy* in which they differ from ordinary comparatives in the scale on which they compare: ordinary comparatives use scales lexically determined by particular adjectives, but metalinguistic ones use a generally-available scale of imprecision or 'pragmatic slack'. To implement this idea, I propose a novel compositional implementation of Lasersohn (1999)'s pragmatic-halos account of imprecision—one that represents clusters of similar meanings as Hamblin alternatives (Hamblin 1973). In the theory that results, existential closure over alternatives mediates between alternative-sets and meanings in which imprecision has been resolved. I then articulate a version of this theory in which the alternatives are not related meanings but rather related utterances, departing significantly from Lasersohn's original conception. Although such a theory of imprecision is more clearly 'metalinguistic', the evidence for it from metalinguistic comparatives in English is surprisingly limited. The overall picture that emerges is one in which the grammatical distinction between ordinary and metalinguistic comparatives tracks the independently-motivated distinction between vagueness and imprecision.

Keywords   comparatives, imprecision, metalinguistic phenomena, degrees, alternatives

1   Introduction

Despite all the attention the semantics of comparatives has received, there has been relatively little discussion of so-called 'metalinguistic' comparatives, such as those in (1):

(1)　　a. George is more dumb than crazy.
　　　　b. Clarence is more a syntactician than a semanticist.
　　　　c. I am more machine now than man.[1]

These differ from ordinary comparatives in a number of significant ways. The small literature on them includes Bresnan (1973), McCawley (1998), Huddleston & Pullum (2002), Embick (2007), Lechner (2007), Giannakidou & Stavrou (2008) and Giannakidou & Yoon (2009). Only the most recent three of these pursue an explicit account of the semantics.

Perhaps the most fundamental question such structures present is to what extent they are genuinely 'metalinguistic', and how 'metalinguistic' should be understood in the first place. The prototypical use of the term is in the literature on metalinguistic negation (Horn 1985, Carston 1996, Alonso-Ovalle & Guerzoni 2004 among others). On this sense, metalinguistic negation is metalinguistic because it 'reject[s] the language used by an earlier speaker' (Horn 1985). Since metalinguistic meaning is meaning about language itself, it is natural[2] to take it to be extra-grammatical in some way, perhaps involving a pragmatic process by which truth-conditional meaning is elaborated. It's not clear, however, what this leads us to expect about metalinguistic comparatives—they may well be about language itself, but they are also intertwined in an especially close way with the compositional semantics. So this is an empirical area in which questions about the division of labor between semantics and pragmatics are particularly fraught.

My aim in this paper is to pursue an account of these constructions, at least in English, that begins relatively close to compositional semantics. The guiding idea will be that metalinguistic and ordinary comparatives, while fundamentally different, are in an important way parallel to each other, and that the most fundamental difference between them tracks a distinction independently needed in degree semantics—the distinction between vagueness and *imprecision*, or how much pragmatic slack is afforded in judging an expression 'close enough to true' (this formulation is Lasersohn 1999's).[3] Ordinary comparatives involve comparison along scales lexically provided by particular adjectives, the same scales that give rise to vagueness in the absence of degree morphology. Metalinguistic comparatives, on the other

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[1]This is uttered by Darth Vader in *Return of the Jedi*.

[2]Natural, but not necessary, as Potts (2007) shows in especially explicit fashion. Further discussion of this follows in section 6.

[3]The terminology here varies in potentially slippery ways, and indeed it should be made clear at the outset that the distinction itself is neither uncontroversial nor straightforward (see Sauerland & Stateva 2007 for discussion). I adopt the general understanding reflected in Pinkal (1995), Lasersohn (1999), and Kennedy (2007), who discuss the difference in more detail than I will here.

hand, involve comparison along a single scale, the scale of (im)precision. To express this idea, I will adopt the pragmatic-halos theory of imprecision of Lasersohn (1999). I will, however, recast it in terms of a Hamblin-style alternative semantics (Hamblin 1973). The result will be a theory that allows degrees of imprecision—roughly, 'halo size'—to be directly compared. Reformulating halos in this way is not crucial to achieving this, but I believe it to be helpful and independently worthwhile. Doing so may actually shed some new light on the compositional process behind a Hamblin-style alternative semantics of the relevant sort.

I begin in section 2 by providing evidence that despite the obvious similarities, metalinguistic comparatives do differ in fundamental ways from ordinary comparatives and can't be regarded as simply a species of ordinary comparative. Section 3 argues that they are 'slack-regulators' in the Lasersohn sense. Section 4 implements this analytical intuition and elaborates the notion of comparison of imprecision. Section 5 provides a compositional semantics that embodies this idea, and that modifies some assumptions about how Hamblin alternatives are assembled compositionally and what role existential closure may play in the process. Section 6 takes up the larger question of what exactly is 'metalinguistic' about such comparatives, including whether they involve comparison of meanings or of utterances themselves, and articulates a compositional semantics that would allow utterances to be compared. Section 7 concludes.

2 Metalinguistic Comparatives vs. Ordinary Comparatives

2.1 *Syntactic and Morphological Differences*

There are a number of syntactic and semantic differences between metalinguistic and ordinary comparatives.

Metalinguistic comparatives (henceforth 'MCs') are impossible with *-er*, even for adjectives that otherwise require *-er* (i.e., synthetic) comparatives:[4]

(2) a. George is more dumb than crazy.
     b. *George is dumber than crazy.

(3) a. Dick is more crazy than dumb.
     b. *Dick is crazier than dumb.

This is all the more striking because *dumb* and *crazy* are not normally compatible with the *more* (i.e., analytic) form of the comparative at all:

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[4]This may be the most clear-cut and well-known property of these constructions. Morphological consequences of this fact come up in Di Sciullo & Williams (1987) and Embick (2007).

(4)   a. ??George is more dumb.
       b. ??Dick is more crazy.

MCs also differ from ordinary comparatives in the syntax of the comparative (i.e., *than*-) clause. The overt portion of the *than*-phrase in MCs can consist of an adjective alone; this is not possible in ordinary comparatives:

(5)   a. George is more dumb than crazy.   (metalinguistic)
       b. George is dumber than Dick.   (ordinary)
       c. *George is dumber than crazy.

MCs are incompatible with measure phrases (Giannakidou & Yoon 2009, to appear):

(6)   a. *George is more tall than six feet.
       b. *George is tall more than six feet.

McCawley (1998, pp. 700-701) observes a difference in the possibility of displacing the comparative morpheme. In ordinary comparatives, *more* must appear immediately left of an adjective:

(7)   a. Murder is more illegal than speeding.
       b. *Murder is illegal more than speeding.

This is not the case for metalinguistic *more*, as the contrast between (7b) and (8) reflects, and (9) further exemplifies:

(8)   Your problems are legal more than financial.   (McCawley 1998)

(9)   a. George is dumb more than crazy.
       b. Clarence is a syntactician more than a semanticist.
       c. I am a machine now more than a man.

There are various caveats and empirical quirks in this area, though, which I return to in sections 5.3 and 5.6.

2.2 *Semantic Differences*

Another signature property of MCs is that they are possible with adjectives that are not ordinarily gradable:

(10)   a. Your problems are more financial than legal.   (McCawley 1998)
        b. *Your problems are more financial than Clarence's.

(11) a. This chair is more wooden than metallic.
      b. ?This chair is more wooden than that one.

MCs also behave distinctively with respect to inferences from the comparative to the positive (i.e., morphologically unmarked) form. Ordinary comparatives fail to license such inferences—they 'neutralize' the adjective:[5]

(12) Clarence is taller than Erma.
      DOES NOT ENTAIL: 'Clarence is tall.'

Indeed, all things being equal, it is not even an implicature of (12) that Clarence is tall. MCs don't give rise to entailments to the positive form either, but they do typically give rise to such inferences as an implicature:

(13) Clarence is more tall than ugly.
      IMPLICATES (BUT DOES NOT ENTAIL): 'Clarence is tall.'

This is only an implicature, however—it is cancelable:

(14) Clarence is more tall than ugly, but he's not (really) tall either.

Partly for this reason, metalinguistic comparison can't be reduced to comparison of deviation (Kennedy 1997, Kennedy & McNally 2005, Kennedy 2007), which involves comparing degrees of deviation from a standard. In this flavor of comparative, there is always an entailment to the positive form:

(15) Clarence is taller than Erma is short.
      DOES ENTAIL: 'Clarence is tall.'

Being an entailment, this inference is not cancelable:

(16) #Clarence is taller than Erma is short, but he's not (really) tall either.

So metalinguistic comparison and comparison of deviation differ in the status of the inference to the positive form.

2.3 *Differences in Cross-Categorial Properties*

Ordinary comparatives are principally possible in the extended AP. MCs are more generally cross-categorial:[6]

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[5]I borrow the useful term 'neutralize' in this sense from Winter (2005).

[6]This claim warrants some qualification. AdvP comparatives are ordinary in the relevant sense, and VP comparatives (Nakanishi 2004b,a, Kennedy & Levin 2008) are as well. A

(17) a. George is more [AP/DegP dumb] than [AP/DegP crazy].
      b. George is more [DegP incredibly dumb] than [DegP incredibly crazy].

(18) a. Clarence is more $\begin{cases} \text{[DP a syntactician] than [DP a semanticist]} \\ \text{[NP syntactician] than [NP semanticist]} \end{cases}$.

      b. A chimp is more $\begin{cases} \text{[DP an ape] than [DP a monkey]} \\ \text{[NP ape] than [NP monkey]} \end{cases}$.

(19) a. George more [VP felt the answer] than [VP knew it].
      b. Clarence will more [VP confess the analysis] than [VP propose it].
      c. Herman [VP stumbled into a solution] more than [VP sought it].

(20) a. George is more [PP beneath contempt] than [PP beyond help].
      b. The dog is sitting [PP on your head] more than [PP in your lap].

(21) ?He realized [CP that he was drunk] more than [CP that he was ugly].

In fact, a single MC can actually compare across different categories:

(22) a. George is more [AP afraid of Dick] than [PP in love with him].
      b. Dick is more [DP a war criminal] than (merely) [AP criminally insane].

MCs aren't completely cross-categorially promiscuous, though. Determiners and modals resist metalinguistic comparison:

(23) a. *More [D all] than [D many] dogs like socks.
      b. *She more [T must] than [T can] chase squirrels.

In some dialects, transitive verbs do too:[7]

(24) a. ?George more [V fears] than [V loves] Dick.
      b. ?Mary more [V respects] than [V admires] John.

                                          (McCawley 1998)

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reviewer points out that nominal amount comparatives such as *I read more books than you did* are too. Beyond that, things get murky. *George is a bigger idiot than Dick* probably expresses *non*-metalinguistic comparison, but it isn't really an ordinary comparative either (Morzycki 2009). Other comparative-like structures, though, one might reasonably suspect of being metalinguistic.

[7]For some speakers, these sentences are at least severely degraded relative to comparison of full VPs (*more fears Dick than loves him*). McCawley finds them good.

2.4 *Cross-Linguistic Evidence*

Some languages distinguish MCs morphologically. Giannakidou &
Stavrou (2008) and Giannakidou & Yoon (2009, to appear) show that this is
the case for Greek *para* and Korean *kipota*. Both of them introduce compara-
tive clauses, so in this respect they resemble *than* and not *more*:

(25) Greek:
      Ta provlimata sou   ine perissotero ikonomika para nomika.
      the problems   yours are more   financial   than legal
      'Your problems are financial more than legal.'

(26) Korean:
      Kim-un   enehakca-la-kipota   chelhakca-i-ta.
      Kim-TOP linguist-DECL-saying.than philosopher-be-DECL
      'Kim is more of a philosopher than he is a linguist.'

Sawada (2007) observes that Japanese has a metalinguistic morpheme as
well:

(27) Taroo-wa sensei-to iu-yori   gakusya-da.
      Taroo-TOP teacher-as say-than scholar-PRED
      'Taroo is more a scholar than a teacher.'

Interestingly, both Sawada (2007) and Giannakidou & Yoon (2009) actually
gloss the metalinguistic markers as something like 'say-than'.

2.5 *Varieties of Metalinguistic Comparison*

Giannakidou & Yoon (to appear) distinguish two varieties of MC: ones that,
in their terms, report judgments of appropriateness and ones that report
judgments of preference. The former variety is the one that will be the focus
here. In English, the latter class occurs with *rather*:

(28) Your problems are financial rather than legal.   (McCawley 1968)

This class has analogues in Greek and Korean (the examples are from Gian-
nakidou & Yoon to appear):

(29) Greek
      Kalitera na pethano para na ton pandrefto!
      I would rather die   than marry him
      'It is not preferable for me that I marry him and it is preferable that I
      die.'

(30) Korean
Ku-wa   kyelhonha-nuni   (charari) nay-ka cwuk-keyss-ta.
him-DAT marry-rather-than rather   I-NOM   die-will-DECL
'I would rather die than marry him.'

A lot hinges on whether both varieties of MCs in fact instantiate a single natural class. Clearly, there is a syntactic connection—in all three languages, these structures contain some form of *than*. From the perspective of English, this may seem a relatively superficial resemblance, but it's worth noting that in Greek and Korean (and in other languages as well) the element that corresponds to English *than* is actually the crucial part of a comparative. Even so, a syntactic connection, however deep it may be, does not in itself require that there be a corresponding semantic natural class. Indeed, the very distinction between 'preference' and 'appropriateness' suggests that if there is a semantic natural class here, it includes a natural sub-class consisting of the MCs considered so far. For the remainder of this paper, I will restrict the term 'metalinguistic' to this sub-class, and use it in reference to English unless otherwise indicated.

2.6 *Summary*

To summarize so far, MCs are not simply a special case of ordinary comparatives. They differ in several important respects:

- they are impossible with *-er* and more generally have a different syntax
- they are possible with non-gradable adjectives
- they typically give rise to an implicature that the adjective holds absolutely
- they are robustly cross-categorial
- in some languages, they are expressed with distinct morphemes

3 Imprecision and Metalinguistic Comparison

3.1 *Appropriateness*

One common and very natural characterization of what an MC like *George is more dumb than crazy* means is something like 'it is more apt or appropriate or otherwise better to say *George is dumb* than to say *George is crazy*'. This initial paraphrase is rather sketchy, though, and a more articulated understanding is desirable.

One more articulated understanding is proposed by Giannakidou & Stavrou (2008), who suggest that the relevant notion of appropriateness is a particular propositional attitude provided by context. In some contexts, it would be an epistemic attitude that they characterize as meaning more or less 'appropriate to say'. In others, it would be an attitude of preference. This helps pin things down, but it leaves in place a core notion of appropriateness that is not further articulated. They do offer a twist on the naïve notion of appropriateness, though. Rather than treating MCs as involving degrees of appropriateness—that is, 'is d-appropriate to say'—they make the epistemic propositional attitude itself gradable. This may not be a deep commitment of the analysis, but it is interesting in that it loosens the relation between the required kind of gradability and the core gradable property of appropriateness. In this respect, it might offer an avenue for exploring how gradability in the degree-semantics sense and gradability of propositional attitudes interrelate.

A related way of thinking about it is proposed, in different forms, in Giannakidou & Yoon (2009) and Giannakidou & Yoon (to appear). In the latter work, Giannakidou and Yoon suggest that there is in fact a propositional attitude at the heart of things, but that it is ultimately always one of *preference*. They identify it with what is expressed by predicates such as *want* or *desire*, which are gradable (e.g., *I want a nap more than I want a sandwich*). They adopt from Villalta (2007) a semantics for *want* that explicitly introduces a degree argument. (Villalta does this by constructing degrees from equivalence classes, in the style of Cresswell 1976, that are formed on the basis of the desirability ordering relation between worlds.) The objects of desire, they suggest, are sentences themselves. Crucially, the nature of the desire is determined by context. Whether one sentence is more desirable than another is determined by what the goals in the context are. The attitude holder is also determined by the context. Thus a sentence like *Paul is more philologist than linguist*[8] is true iff 'according to the speaker, the degree d to which the sentence *Paul is a philologist* is desirable is greater than the degree d' to which *Paul is a linguist* is desirable'. This gives rise to a very flexible notion of preference which can include appropriateness.

I will adopt a different course.[9] Rather than broadening the definition of appropriateness, I will argue that it is possible to identify it more concretely by restricting it. Some data may help clarify the situation. Suppose Herman has entered a kindergarten class and said to the children, 'George is an asshole'. Clarence might reasonably take him aside and say (31a); it would be distinctly odd, however, for him to say (31b):

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[8]This translates their original Greek example.

[9]I return to Giannakidou & Yoon (to appear) in section 5.8

(31)   a.   It's more appropriate to say *He is a bad man* than to say *He is an asshole*.
       b.   ??He's more a bad man than an asshole.

Here is another scenario: Herman approaches the bereaved at a funeral and says 'Sorry your mother croaked'. Clarence might felicitously respond with (32a), but not with (32b):

(32)   a.   It's more appropriate to say *She passed away* than to say *She croaked*.
       b.   ??She more passed away than croaked.

It seems that appropriateness with respect to register or broader sociolinguistic context is *not* what's at issue.

Certain other conceivable linguistic appropriateness relations fail too. In working out a rough draft of a poem, Coleridge might have uttered (33) to Clarence:

(33)   in Xanadu did Kubla Khan
       a stately pleasure dome requisition

Clarence might respond with (34a), but not with (34b):

(34)   a.   It's more appropriate/better (metrically) to say he *decreed* it than to say he *requisitioned* it.
       b.   ??He more decreed it than requisitioned it.

So aesthetic appropriateness seems to be ruled out as well.

It is of course possible to characterize appropriateness more finely using the powerful tools intensional semantics provides. This strikes me as a useful enterprise, especially if it were to emerge that there is fine-grained variation among languages in precisely what flavor of appropriateness their metalinguistic comparative morphemes invoke. This runs counter to the Giannakidou & Yoon (to appear) strategy, though, in that it would entail developing a more narrow definition rather than a more expansive one. Be that as it may, it is probably more than an accident that metalinguistic comparison would make use of precisely this notion of appropriateness rather than another. It seems unlikely to be the case that this reflects a fact about a particular intensional operator, whose lexical semantics could in principle vary almost arbitrarily from one language to another.

An alternative to appropriateness is suggested by McCawley (1998, pp. 700-701), who characterizes MCs as involving 'the degree to which it is

correct to say' something.[10] This may offer a more restrictive way to cash out 'appropriateness'. It is also closer to the intuition I will pursue, attempting to identify 'correctness' with (or at least relate it to) the independent phenomenon of imprecision and what Lasersohn (1999) calls 'pragmatic slack'.

3.2 *Vagueness vs Imprecision*

Prototypical examples of vagueness involve uncertainty about where cut-off points on a scale are located. *Tall*, for example, is vague because we can never be certain, in any given context, exactly how tall one must be to qualify. Indeed, it is not altogether clear whether there is a fact here to be certain of in the first place—that is, whether the problem is that there may not be such a cut-off point or whether it is merely impossible to determine precisely where it is (see Williamson 1994 for discussion of this point). Either way, speakers are left unable to judge whether certain things are or are not in the extension of a vague predicate. They are left with what Klein (1980) (and very many subsequently) called an extension gap.[11] To make this more concrete, suppose Clarence is six feet tall. This may or may not count as tall, depending on circumstances. Without further information, we are unable to judge whether (35) is true or false:

(35)   Clarence is tall.   (vague)

The uncertainty here is quite apparent in everyday use. No reasonable person would agree to a bet that is to be determined on the basis of whether some as-yet-unseen individual turns out to be tall. There would be no objective way to resolve such a bet. This uncertainty contrasts starkly with how we react to sentences such as (36):

(36)   Clarence is six feet tall.   (not vague)

There is no such doubt here, no extension gap. Irrespective of context, speakers feel quite confident that they know precisely what it takes to be six feet tall. And a perfectly reasonable person might place a bet on whether someone turns out to be six feet tall. So the measure phrase eliminates vagueness.

    This seems relatively straight-forward. But in some unusual circumstances, the situation becomes murkier. If, for example, I have agreed to the bet that

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[10]A reviewer observes that by 'correct', he may in fact have meant 'conversationally appropriate', which would put us back where we started.

[11]The term is not present explicitly in Kamp (1975) and Fine (1975), but the concept is.

the unseen person is six feet tall, I might still find myself in an argument once this person—Clarence, say—has presented himself and agreed to be measured. It might turn out that Clarence is just barely shorter than six feet, by a tiny fraction of an inch. Here, again, there seems to be a kind of uncertainty. Yet this uncertainty is of a quite different kind. If we have established conclusively that Clarence's height falls short of six feet, even by a fleetingly small amount, it would be very difficult for me to insist that he is nevertheless six feet tall. With this information, I could convince no one that (36) is true. Any argument that breaks out is not about the truth value of (36) as such. It is rather about how precisely we want to interpret the terms of our bet. To weasel out of the bet, I might accuse you of being unreasonable or pedantic in insisting that (36) is false, but I could not accuse you of being wrong about it. So, despite the dispute, (36) does not seem to be vague. It is, however, potentially *imprecise*, and we can disagree about the intended level of precision.

Taken to its logical conclusion, this all has the odd consequence that, speaking absolutely strictly, it is improbable that anyone is six feet tall. With sufficiently precise instrumentation, we would discover that virtually everyone falls at least an atom or two short, or is at least an atom or two too tall. This is sheer pedantry, of course—but again, it is not wrong. This is the insight that Lasersohn (1999) articulates in especially clear terms. In ordinary use, we are happy to judge true sentences that, if really pressed, we would be forced to admit are technically false. We allow ourselves some *pragmatic slack*. Imprecision is at heart not an issue of truth or falsity as such, but of how close an approximation of truth is pragmatically sufficient.

This distinction between these two flavors of linguistic uncertainty—vagueness and imprecision—is to be found in Pinkal (1995), Kennedy (2007) and Sauerland & Stateva (2007).[12] *Seem* is sensitive to this distinction. It is compatible with vague predicates (Matushansky 2002), but not with ones that are merely imprecise:

(37)   Clyde seems (*six feet) tall.

The crucial point for the moment, though, is just that there is such a distinction.

The amount of pragmatic slack speakers give each other is of course not typically made explicit, but a variety of linguistic devices can help make it clear. *Precisely*, for example, restricts the amount of pragmatic slack available:

(38)   Clarence is precisely six feet tall.

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[12]The terminology varies among these. Sauerland and Stateva make a compelling case for preferring the terms 'scalar vagueness' and 'epistemic vagueness' for (ordinary) vagueness and imprecision, respectively.

For (38) to be judged close enough to true, Clarence has to be closer to being six feet tall than if *precisely* were absent.

3.3 *Pragmatic Halos*

Lasersohn (1999) conceptualizes imprecision in terms of *pragmatic halos*. The pragmatic halo of an expression is a set of objects of the same type as its denotation which differ in only 'pragmatically ignorable' ways. Thus, in most contexts, $[\![$ *six feet* $]\!]$ has a halo around it consisting of lengths that are near enough to six feet not to make any difference: $5'11\frac{1}{2}''$–$6'\frac{1}{2}''$, say. Halos expand compositionally. The halo of $[\![$ *six feet long and three feet wide* $]\!]$ combines the halos of $[\![$ *six feet tall* $]\!]$ and $[\![$ *three feet wide* $]\!]$, so that it might include objects that are $5'11\frac{1}{2}''$ tall and $2'11\frac{1}{2}''$ wide.

   This independently existing distinction, then, may be able to provide a clearer sense of the required notion of appropriateness. One linguistic expression might be less appropriate than another in indefinitely many ways. But many ways of being less appropriate are not ways of being less precise. To tell a group of children, as in (31), that George *is an asshole* is not less precise that to say that he is *a bad man*. It may well be more so. If in fact MCs compare imprecision, the impossibility of using them to discourage cursing at children follows. So too for the impossibility of using MCs to discourage insensitive funeral behavior in (32) and bad poetry in (33). This is not to say that there is a completely clear-cut or invariant concept of imprecision that would allow us to build, once and for all, an ordering of expressions according to their precision. This is certainly not the case—there are indefinitely many different ways in which one description may be more or less precise than another. Even so, there are considerably fewer ways of being imprecise than of being inappropriate. Where exactly this difference lies is of course an analytical question. With certain assumptions in place, MCs may help us answer it.

4 Metalinguistic Comparatives as Imprecision Regulators

4.1 *Halos and Alternatives*

To make the connection between imprecision and metalinguistic comparison, I will recast Lasersohn's original halo framework in different terms. The idea will be to understand halos as sets of alternatives. It probably is not the case that such a reformulation is *necessary* to provide an account of the facts here. But there are nonetheless several reasons to undertake it.

First, if one adopts a degree semantics for (ordinary) comparatives, and if ordinary and metalinguistic comparatives are to be understood in broadly similar terms, some notion of 'degrees of imprecision' will be necessary—that is, some means of 'measuring' halo size. So in that respect, *some* theoretical elaboration is required in any case.

Second, making use of alternatives makes clearer that the basic machinery involved does not, in fact, come at a high theoretical price. The core of Lasersohn's proposal can be understood as an application of grammatical mechanisms that are independently necessary. His conception of what halos are and how they combine is quite similar to what alternatives of different sorts are like. In particular, the principles by which the halos of larger expressions are built up compositionally from those of their constituents have precisely the same character as the principles of semantic composition in alternative semantics. In part for this reason, it does his original proposal no great violence to cast it in terms of alternatives, and he himself notes the connection in passing. Thus his proposal does not require the grammar to do anything that it was not in some sense doing already. One potential alternative—or supplement—to the proposal I pursue here is to make use of a distinct and parallel semantic dimension alongside the truth-conditional one, a dimension that tracks expressive meaning and conventional implicatures (Potts 2003, Potts 2007; see section 6). That may well turn out to be what is necessary, but I believe it comes at a higher theoretical cost than Lasersohn's model alone. Using alternatives—which, however inconveniently complicated, are at least familiar—may help make the price tags easier to discern.

Third, using alternatives has the promise of bringing to light unexpected connections between imprecision and other grammatical phenomena that might otherwise not have been apparent. It may of course emerge that these are spurious connections, but better to let them come into view only to reject them than to leave them unnoticed. In recent years an increasingly wide range of phenomena has proven to be amenable to an understanding in terms of alternatives—not just questions (Hamblin 1973) and focus (Rooth 1985), but also topichood (Büring 1997), pronouns (Kratzer & Shimoyama 2002), indefinites (Alonso-Ovalle & Menéndez-Benito 2004, Menéndez-Benito 2005), disjunction (Alonso-Ovalle 2006), conjunction (Agafonova 2010), and scalar implicatures (Chierchia 2004, Keshet 2006). Pursuing an alternative-semantic model of imprecision therefore relates it to other phenomena that are not superficially similar, but the parallels may upon further investigation turn out to be meaningful. Approaching MCs specifically in these terms relates not just a big-picture grammatical phenomenon, imprecision, to these other areas, but also a specific construction. One point of contact with these other areas will emerge in section 5 in the role of existential closure in the current

proposal, which may extend to other applications of Hamblin alternatives. Another is a connection between MCs and focus raised in section 4.4. Perhaps there are others.

4.2 *Degrees of Similarity and Degrees of Precision*

The first ingredient in the alternative-semantic conception will be a cross-categorial 'approximates' relation, which holds between two objects in the model if they are sufficiently similar. As Lasersohn shows, the context of use determines how similarity is evaluated. Different contexts impose different similarity orderings. To determine whether two objects are similar, then, what will be required is a standard of similarity and a context that provides the scale of similarity. The standard or threshold of similarity can be construed as a degree d, a real number in the interval $[0, 1]$:

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

Identity is simply maximal similarity, so for any context C, $\alpha \approx_{1,C} \beta$ iff $\alpha = \beta$. Importantly, in this conception degrees of similarity are all on the same scale.

This similarity relation will be the foundation of denotations that reflect degrees of imprecision. The idea will be to relativize the interpretation function to degrees of precision (and contexts), and to take an expression like *dumb* to denote the set of alternatives consisting of predicates sufficiently similar to *dumb*, and likewise for *three o'clock*:

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

   b. $[\![\, three\ o'clock \,]\!]^{d,C} = \{t_i : t \approx_{d,C} 3{:}00\}$

As a result, *dumb* interpreted absolutely precisely will denote the singleton set containing only *dumb*; interpreted absolutely imprecisely, it would be completely uninformative and denote all predicates of the right semantic type:[13]

(41) for every context C: $[\![\, dumb \,]\!]^{1,C} = \{dumb\}$

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

 $[\![\, three\ o'clock \,]\!]^{1,C} = \{3{:}00\}$

 $[\![\, three\ o'clock \,]\!]^{0,C} = D_i$

---

[13]I use i here for temporal intervals.

Thus *dumb* denotes a set of alternatives whose size depends on the degree of precision the context demands:

(42)   a. $[\![\, dumb \,]\!]^{0.9,C} = \{dumb, ignorant, dopey, foolish, slow\text{-}witted, \, \ldots \}$

      b. $[\![\, dumb \,]\!]^{0.8,C} =$

$$\left\{ \begin{array}{l} dumb, ignorant, dopey, foolish, slow\text{-}witted, confused, \\ incurious, intellectually\text{-}lazy, criminally\text{-}reckless \, \ldots \end{array} \right\}$$

Standard principles of composition in alternative semantics—pointwise function application—will ensure that halos will 'expand' properly. That is, the alternatives that a constituent denotes are each the result of combining one alternative in the denotation of one of the daughters with another in the denotation of the other. This will be explored explicitly in section 5, but for the moment it will suffice to illustrate by example:

(43) $[\![\, jerk \,]\!]^{0.9,C} = \{jerk, schmuck, putz, \ldots\}$

     $[\![\, dumb \,]\!]^{0.9,C} = \{dumb, ignorant, dopey, \ldots\}$

$$[\![\, dumb \; jerk \,]\!]^{0.9,C} = \left\{ \begin{array}{ll} \lambda x \lambda w . dumb(x)(w) & \wedge \; jerk(x)(w), \\ \lambda x \lambda w . dumb(x)(w) & \wedge \; schmuck(x)(w), \\ \lambda x \lambda w . dumb(x)(w) & \wedge \; putz(x)(w), \\ \lambda x \lambda w . ignorant(x)(w) & \wedge \; jerk(x)(w), \\ \lambda x \lambda w . ignorant(x)(w) & \wedge \; schmuck(x)(w), \\ \lambda x \lambda w . ignorant(x)(w) & \wedge \; putz(x)(w), \\ \lambda x \lambda w . dopey(x)(w) & \wedge \; jerk(x)(w), \\ \lambda x \lambda w . dopey(x)(w) & \wedge \; schmuck(x)(w), \\ \lambda x \lambda w . dopey(x)(w) & \wedge \; putz(x)(w), \\ \multicolumn{2}{c}{\vdots} \end{array} \right\}$$

At the clause level, the result will be a set of propositions. Of course, a *set* of propositions is not the sort of thing that can be directly asserted, so at this point—again, in keeping with standard assumptions—an existential closure operation applies that requires that there be a proposition in the set that is true.[14]

4.3   *Comparing Imprecision*

In order to begin assembling a denotation for metalinguistic comparatives, it will be helpful to first adopt some very broad assumptions about how

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[14]The world variables in these denotations and throughout the paper will not do anything interesting, but the system does need to be intensional—in one way or another—to ensure that sentences denote sets of propositions (rather than sets of truth values).

ordinary comparatives work. On one analysis, a comparative such as (44a) might be interpreted along the lines of the denotation in (44b):[15]

(44) a. George is dumber than Dick.
      b. $\exists d[dumb(d)(George)(w) \wedge \neg dumb(d)(Dick)(w)]$

This requires that there be a level of dumbness that George has reached and that Dick has not reached. To make sense of this, it is necessary to assume that anyone who has a given degree of dumbness also has all lower degrees of dumbness. The notable features of this approach include the use of degree arguments and of quantification over degrees, and the absence of a maximality operator or explicit reference to an ordering relation. In this respect it differs from many common alternatives (including Kennedy 1997 and Rullmann 1995 among many others). Various instantiations of this general approach are developed in Kamp (1975), Klein (1980), Seuren (1973) and McConnell-Ginet (1973), and Schwarzschild (2008) provides a recent overview of the idea. I adopt it here only because it will make some denotations in the paper marginally more readable. Most of the proposal could be implemented in any framework that makes use of degrees.

By hypothesis, metalinguistic *more* differs from its ordinary counterpart in that it compares degrees of halo size. Putting things a bit too sloppily, it requires that the first of its arguments be closer to being true of the subject than its second. In halo terms, this means that the halo needed for the first argument is smaller and therefore more restrictive—more precise—than that needed for the second. For (45), then, it will be not degrees of dumbness that are at issue, but rather degrees of closeness to the truth:

(45) George is more dumb than crazy.

The ordinary comparative in (44) required that there be a degree to which George is dumb. What (45) requires is that there be a degree of precision with respect to which George counts as dumb. The ordinary comparative required that the relevant degree of dumbness be one that Dick has not attained. What (45) requires is that the relevant degree of precision be one with respect to which George is not crazy. These requirements are reflected in (46):[16]

(46) $\exists d[[\![\textit{George is dumb}]\!]^{d}(w) \wedge \neg [\![\textit{George is crazy}]\!]^{d'}(w)]$

                                                (not a well formed formula)

---

[15]Here and in subsequent examples, w is the evaluation world.

[16]From this point on, I will omit the C context parameter for convenience.

This resembles the ordinary comparative denotation quite closely, but it can't be quite right. In the alternative semantics assumed here, $[\![\,George\ is\ dumb\,]\!]^d$ denotes a set of propositions, so it can't apply to w. To express what (46) is trying to mean, it will be necessary to introduce existential quantification over alternatives. What the first conjunct in (46) should actually say is not that $[\![\,George\ is\ dumb\,]\!]^d$ is true, but rather that it contains a proposition that is true (in the evaluation world w):

(47) $\exists d \begin{bmatrix} \exists p[p \in [\![\,George\ is\ dumb\,]\!]^d \wedge p(w)]\ \wedge \\ \neg\exists q[q \in [\![\,George\ is\ crazy\,]\!]^d\ \wedge q(w)] \end{bmatrix}$

This is closer. There is another difficulty, however.

The sentence *George is more dumb than crazy* doesn't include either *George is dumb* or *George is crazy* as a constituent. This is a partly compositional concern of the sort I will postpone until section 5, but not entirely. It needs to be the case that *more* targets the adjective itself rather than the whole clause.[17] This may not be a problem in the particular sentence at hand. The proper name *George* probably doesn't invoke alternatives, because proper names may well always be maximally precise—it is difficult to imagine a context in which we would be willing to judge something close enough to being true of George because it is true of someone very similar to him. But other DPs, like *George's advisors,* are potentially imprecise. (Just how strictly should we take the word *advisor*?) For such cases, a distinction should be made to avoid predicting the wrong truth conditions for (48):

(48)   George's advisors are more dumb than crazy.

Without making the distinction, we would allow in the second conjunct alternatives such as 'George's colleagues are crazy' or 'George's hangers-on are crazy'. This would cause the truth conditions of the sentence to be too strong—(48)'s truth or falsity cannot hinge on properties of George's hangers-on.

What is really necessary, then, is not that $[\![\,George\ is\ dumb\,]\!]^d$ contain a true proposition, but rather that $[\![\,dumb\,]\!]^d$ contain a property true of George. So too in the second conjunct. This yields (49):

(49) $\exists d \begin{bmatrix} \exists f[f \in [\![\,dumb\,]\!]^d \wedge f(George)(w)]\ \wedge \\ \neg\exists g[g \in [\![\,crazy\,]\!]^d \wedge g(George)(w)] \end{bmatrix}$

---

[17]At least in this instance. Giannakidou & Yoon (2009) argue that metalinguistic comparison in general is in fact inherently propositional. I return to this issue in section 5.5.

In halo terms, this means that there must be a degree of precision at which the halo around *dumb* contains something true of George and the halo around *crazy* does not—or, that a more restrictive halo will suffice for ⟦*dumb*⟧ to contain something true of George than for ⟦*crazy*⟧ to do so. One could take (49) another step, to yield (50):

(50) $\exists d \left[\begin{array}{l} \exists f[f \approx_d dumb \wedge f(George)(w)] \wedge \\ \neg \exists g[g \approx_d crazy \wedge g(George)(w)] \end{array} \right]$

For the remainder of the paper, I will stick to representations such as (49), since they reflect more clearly what role alternatives play.

There are a variety of ways in which (50) might hold, but here is one:

- it is not absolutely precise to say that *dumb* holds of George, so he is not dumb at the precision degree 1

- allowing ourselves even the slightest amount of conversational slack, however—the precision degree 0.9, say—we discover something nearly identical to *dumb* that *is* true of George

- at this exacting level of precision, there is no alternative to *crazy* that is true of George

- if we were to allow ourselves more slack—precision 0.8, say—we might find something more or less similar to *crazy* that is true of George (*psychologically-disturbed*, perhaps), but this is irrelevant because of the contrast observed at the higher precision degree 0.9

The important fact this reflects is that it need not be absolutely true that George is dumb, so long as it is more nearly true than that George is crazy. Of course, if it were absolutely true that he is dumb, the situation would only be clearer.

The next step is to frame a general denotation for metalinguistic *more*, which (following Giannakidou & Stavrou 2008 and Giannakidou & Yoon 2009) I'll call *more*_ML:

(51) $⟦ \alpha \text{ is more}_{\text{ML}} \beta \text{ than } \gamma ⟧^d =$

$$\left\{ \lambda w \, . \, \exists d' \left[\begin{array}{l} \exists f[f \in ⟦ \beta ⟧^{d'} \wedge f(⟦ \alpha ⟧^{d'})(w)] \wedge \\ \neg \exists g[g \in ⟦ \gamma ⟧^{d'} \wedge g(⟦ \alpha ⟧^{d'})(w)] \end{array} \right] \right\}$$

This is of course not a compositional denotation, but it will serve as a foundation for the compositional one. There is one additional subtlety reflected in (51). The whole sentence denotes a set of alternatives, as is normal in a Hamblin-style system. In this case, it happens to be a singleton set.

If this is on the right track, MCs should actually eliminate further imprecision. That is, *more dumb than crazy* should itself be not at all imprecise, because it denotes a singleton set. This seems plausible—it is difficult to imagine what the halo of this expression should look like. Possibilities like *more foolish than crazy* seem straightforwardly inappropriate. If this weren't the case, (52) might be felicitous:

(52) #George is more dumb than crazy. To be precise, he is more foolish than crazy.

That said, it would be possible (though not especially pretty) to construct a denotation for MCs in this spirit that doesn't eliminate imprecision.

4.4 *Focus*

This way of construing MCs brings out a parallel to the effect of focus. Empirically, it seems to be the case that the first argument of $more_{ML}$ is often focused (I indicate focus with italics):

(53)   A: Is George crazy?
       B: George is more *dumb* than crazy.

(54)   A: Clarence proposed an analysis of Icelandic case last week.
       B: Yeah, I heard that talk. He more *confessed* that analysis than proposed it.

(55)   A (pointing to a photo): My dog likes sitting on my lap.
       B (looking at it):   Your dog is sitting more *on your head* than in your lap.

The connection between MCs and focus is probably more than accidental.

Focus is often analyzed, following Rooth (1985, 1996), in terms of alternatives, though alternatives of a slightly different variety than the ones considered here. A typical way of rendering the truth conditions of a focused sentence such as (56a) is by appeal to the focus alternatives it invokes, in (56b):[18]

(56)   a. George only likes *pretzels*.
       b. $\left\{ \begin{array}{l} \text{'likes pretzels', 'likes popcorn', 'likes kumquats', 'likes arugula',} \\ \text{'likes those wasabi-covered pea things', } \ldots \end{array} \right\}$

---

[18]The relevant focus alternatives should actually be a set of propositions rather than properties. I represent them as properties here because it brings out the parallel to MCs more clearly.

What (56a) means, on this view, is that the only member of this set of alternatives that is true of George is the one that corresponds to basic meaning of the VP—namely, the alternative 'likes pretzels'. The non-presuppositional component of this is just that there is only one member of the alternative set that is true of George. This can be represented as in (57), where $[\![\textit{likes pretzels}]\!]^f$ represents the focus-alternative set in (56b):

(57) $\quad \exists f[f \in [\![\textit{likes pretzels}]\!]^f \wedge f(\textit{George})(w) \wedge$
$\neg \exists g[g \in [\![\textit{likes pretzels}]\!]^f \wedge g(\textit{George})(w) \wedge f \neq g]]$

This rather resembles (51). One shouldn't make too much of this resemblance, but it does bring to light a parallel between these two varieties of alternatives, and a connection between MCs and how focus behaves with respect to *only*. Just as *only* involves quantification over focus alternatives, $more_{\text{ML}}$ involves quantification over precision alternatives. The effect of both can be expressed by conjoining two propositions, one of which is negated. Whatever the deeper significance of this connection turns out to be, couching Lasersohnian halos in an alternative semantics makes it easier to perceive.

4.5 *Incommensurability*

Comparatives constructed from adjectives that measure along distinct scales are normally ill-formed:[19]

(58) a. *This chair is wider than it is heavy.
b. *Clarence is taller than he is boring.

This kind of incommensurability is a signature property of ordinary comparatives.

If all MCs compare degrees of precision, these incommensurability effects should be absent in metalinguistic comparison. In general, this is indeed the case, as many examples already provided demonstrate—George can be said to be *more dumb than crazy* even though the scales of stupidity and insanity are distinct. But what about (59)?:[20]

(59) a. That disc is more rectangular than $\left\{ \begin{array}{l} \text{round} \\ \text{??flat} \end{array} \right\}$.

b. This chair is more wide than $\left\{ \begin{array}{l} \text{large} \\ \text{??heavy} \end{array} \right\}$.

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[19]There is a comparison-of-deviation-style reading on which these may be improved.

[20]I owe this observation, and (59a), to an anonymous NELS reviewer.

c. Clarence is more tall than $\begin{Bmatrix} \text{huge} \\ ^{??}\text{boring} \end{Bmatrix}$.

Clearly, MCs are not so thoroughly indiscriminate that they can compare an arbitrary pair of predicates. It's not obvious, though, that what goes wrong here involves comparison across scales. A relatively apparent difference is that these examples don't seem to be as starkly ill-formed as (58).

One can also imagine contexts in which at least some of these would be more felicitous. The exchange in (60) reflects one such scenario:

(60) A: Are you having trouble carrying this chair into the living room? I guess it's kind of heavy.
    a. B: Well, it's not really *heavy* as such. It's more *wide* than heavy. I can't get it through the door.
    b. B: #Well, it's not really *heavy* as such. It's *wider* than it is heavy. I can't get it through the door.

Even (59c) might be salvageable. Suppose that there are two contests, and no one can enter both. One of them can be won by being the tallest person; the other by being the most boring. In considering which contest Clarence should enter, we might make the observation in (61a), but not the one in (61b):

(61) a. Clarence is more tall than (he is) boring.
    b. *Clarence is taller than (he is) boring.

So examples like these really reflect at best a kind of quasi-incommensurability, one that depends on the circumstances of use.

This suggests a pragmatic explanation for the effect. Any two predicates can have their precision compared grammatically, but in order for such a comparison to be felicitous, it must be in some way relevant. There must be a *reason* to compare the two predicates. For some predicates, it is very easy to imagine such a context. For others, a fairly bizarre one may be required. For others still, no context may suffice. But these are facts about the circumstances under which one might have an interest in the relative precision of two predicates, not about whether two predicates can be compared in principle.

All things being equal, one might expect ordinary comparatives to be subject to such a restriction as well.[21] It is not completely clear whether this is the case. Comparatives such as those in (62) do sound odd, but perhaps not in quite the same sense:

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[21]This point and (62a) both due to an anonymous NALS reviewer.

(62)   a. ?The Eiffel Tower is taller than this insect.
         b. ?That song is prettier than your cousin.
         c. ?Your hat is less heavy than Jupiter.

These border on the bizarre, as do the infelicitous examples in (59). Is this sense of bizarreness tantamount to infelicity, though? There is a certain danger here of pushing the methodology of introspection a bit too far. This is particularly the case in light of the relatively mild sense of bizarreness involved. It seems plausible, however, that (59) and (62) are in fact analogous.

To the extent that one can perceive a difference, it may be due to the relative difficulty of accommodating such sentences in a discourse. While a comparison between the Eiffel Tower and an insect is extremely unlikely to be relevant to any reasonable conversational aims, it is quite easy to imagine unreasonable ones that would make it relevant. This helps explain the sense of bizarreness. It's not that comparing the Eiffel Tower to an insect is inherently bizarre, but it does require a bizarre discourse to be felicitous. That we feel the bizarreness more keenly than the infelicity is a testament to the ease with which we can accommodate the required bizarre discourse assumptions. By contrast, MCs are quite difficult to accommodate. It takes some real work to imagine a context in which it would make sense to compare the relative precision of *tall* and *boring*, for example. So in these cases, we feel the infelicity more keenly than the bizarreness.

5   The Compositional Semantics of Imprecision and Metalinguistic Comparison

5.1   *Compositional Assumptions*

The principal goal of section 5 will be to develop a semantics for MCs that is compositional. This is not an entirely straightforward undertaking. Compositionality in an alternative semantics is inherently complicated because it makes use of pointwise function application to generate alternative sets. This complexity weighs especially heavily on any account that addresses clause-internal compositional issues.

The particular Hamblin-style framework I will build on is that of Kratzer & Shimoyama (2002) and Shimoyama (2006), where such issues are the explicit focus. The principal rule of composition in this system is (63):[22]

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[22]This particular formulation reflects how Shimoyama (2006) states it, following Rooth (1985).

(63) HAMBLIN FUNCTIONAL APPLICATION:

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

For reasons that will become clear, it will be necessary to hold on to the ordinary functional application rule as well.

An alternative framework of this sort also requires some way of mapping a sentence denotation—which is a sets of propositional alternatives—to a single proposition. The natural way to do this is to assume some form of existential closure, which I'll represent with a node in the syntax:

(64) $[\![\,\exists\,\alpha\,]\!]^d = \lambda w \,.\, \exists p[p \in [\![\,\alpha\,]\!]^d \wedge p(w)]$
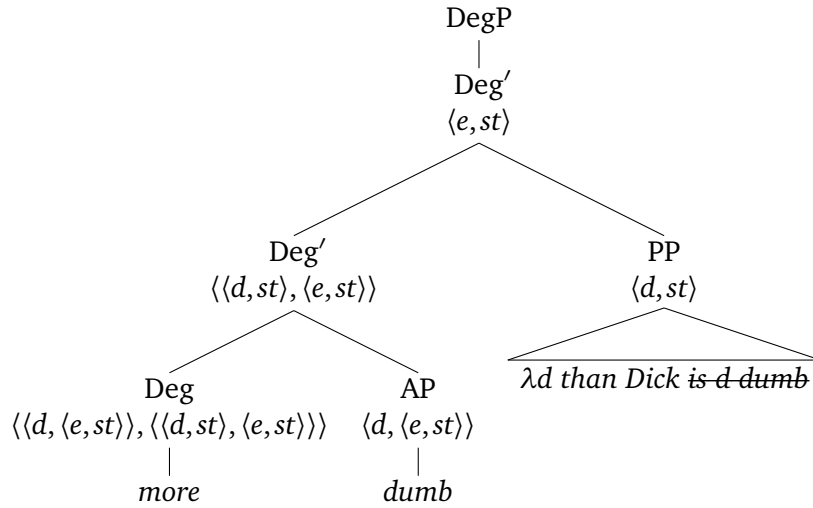
Kratzer and Shimoyama assume that existential closure can take place not only at the top of the tree, but also at intermediate points, as is typical in work inspired by Heim (1982) and Kamp (1981). Their existential closure operation is different from (64) in at least one important way, though: it creates a singleton set of alternatives rather than, as in (64), a proposition.

5.2 *Ordinary Comparatives*

With these assumptions in place, we can now ask how comparatives would work in this framework. A natural place to start is ordinary comparatives rather than MCs.

There are a number of different ways to arrive at a comparative denotation, and to my knowledge any of them would be equally appropriate here. I'll adopt a syntax in which AP is embedded under the functional projection DegP (Abney 1987, Grimshaw 1991, Corver 1990; cf. Chomsky 1965, Bresnan 1973, Heim 2000, Bhatt & Pancheva 2004):

(65)

$$
\begin{array}{c}
\text{DegP} \\
| \\
\text{Deg}' \\
\langle e, st \rangle
\end{array}
$$

Deg′ $\langle\langle d, st\rangle, \langle e, st\rangle\rangle$ PP $\langle d, st\rangle$

Deg $\langle\langle d, \langle e, st\rangle\rangle, \langle\langle d, st\rangle, \langle e, st\rangle\rangle\rangle$ AP $\langle d, \langle e, st\rangle\rangle$ λd *than Dick* ~~*is d dumb*~~

more   *dumb*

As (65) reflects, I have treated the comparative clause as an adjunct, and I have split *dumber* into *more* and *dumb*. The type labels reflect that the adjective denotes a relation between individuals and degrees (Seuren 1973, Cresswell 1976, von Stechow 1984 and many others) and that the comparative clause denotes a property of degrees created by binding the degree argument of the (usually) elided adjective it embeds.

This can all be imported into the alternative semantics developed here, with one modification: the non-Hamblinized denotations will all be replaced with alternative sets that contain the original denotation. As a consequence the types in the tree in (65) will need to be understood as reflecting the type of the alternatives each node's denotation includes rather than of the denotation itself. Following the discussion in section 4.2, the denotations of *dumb* and λd *than Dick* ~~*is d dumb*~~ will be sets of alternatives that represent the halos of these expressions:[23]

(66)   a. $[\![\,dumb\,]\!]^d = \left\{ \begin{array}{l} \lambda d \lambda x \lambda w \,.\, dumb(d)(x)(w), \\ \lambda d \lambda x \lambda w \,.\, foolish(d)(x)(w), \\ \qquad\qquad \vdots \end{array} \right\}$

      b. $[\![\,than\ Dick\,]\!]^d = \left\{ \begin{array}{l} \lambda d \lambda w \,.\, dumb(d)(Dick)(w), \\ \lambda d \lambda w \,.\, foolish(d)(Dick)(w), \\ \qquad\qquad \vdots \end{array} \right\}$

Ordinary *more* will denote a singleton set, because it does not seem to be a potential source of imprecision:[24]

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[23] I've abbreviated the content of the comparative clause.

[24] This isn't altogether obvious, but it is at least plausible, and it will greatly simplify the

(67) $[\![\,more\,]\!]^{d} = \{\lambda g_{\langle d,\langle e,st\rangle\rangle}\lambda f_{\langle d,st\rangle}\lambda x\lambda w . \exists d'[g(d')(x)(w) \land \neg f(d')(w)]\}$

The sole alternative *more* denotes will take as arguments the contents of an adjective denotation and the contents of a comparative clause denotation, yielding a property. The process of composition makes use of the Hamblin Functional Application rule:

(68) $[\![\,more\ dumb\,]\!]^{d} = \{\,b(c) : b \in [\![\,more\,]\!]^{d} \land c \in [\![\,dumb\,]\!]^{d}\,\}$

$$= \left\{ \begin{array}{l} b(c): \\[4pt] b \in \left\{ \lambda g_{\langle d,\langle e,st\rangle\rangle}\lambda f_{\langle d,st\rangle}\lambda x\lambda w . \exists d' \left[\begin{array}{l} g(d')(x)(w)\ \land \\ \neg f(d')(w) \end{array} \right] \right\} \land \\[10pt] c \in [\![\,dumb\,]\!]^{d} \end{array} \right\}$$

$$= \left\{ \begin{array}{c} \lambda f_{\langle d,t\rangle}\lambda x\lambda w . \exists d'[c(d')(x)(w) \land \neg f(d')(w)] : \\ c \in [\![\,dumb\,]\!]^{d} \end{array} \right\}$$

$$= \left\{ \begin{array}{l} \lambda f_{\langle d,t\rangle}\lambda x\lambda w . \exists d'[dumb(d')(x)(w)\ \land\ \neg f(d')(w)], \\ \lambda f_{\langle d,t\rangle}\lambda x\lambda w . \exists d'[foolish(d')(x)(w)\ \land\ \neg f(d')(w)], \\ \hspace{3cm} \vdots \end{array} \right\}$$

There is already a lot going on beneath the surface here. The first step is that each alternative b in $[\![\,more\,]\!]^{d}$ applies to each alternative c in $[\![\,dumb\,]\!]^{d}$. Because $[\![\,more\,]\!]^{d}$ denotes a singleton set, b must be the sole member of that set. Substituting this in for b and doing some lambda conversion yields the second-to-last line in (68), which leads to alternatives of the form exemplified on the last line. This alternative set now applies pointwise to $[\![\,than\ Dick\,]\!]^{d}$:

(69) $[\![\,[\ more\ dumb\ ]\ [\ than\ Dick\ ]\,]\!]^{d}$

$$= \{\,h(i) : h \in [\![\,more\ dumb\,]\!]^{d} \land i \in [\![\,than\ Dick\,]\!]^{d}\,\}$$

$$= \left\{ \begin{array}{c} \lambda x\lambda w . \exists d'[c(d')(x)(w) \land \neg i(d')(w)] : \\ c \in [\![\,dumb\,]\!]^{d} \land i \in [\![\,than\ Dick\,]\!]^{d} \end{array} \right\}$$

$$= \left\{ \begin{array}{l} \lambda x\lambda w . \exists d'[dumb(d')(x)(w)\ \land\ \neg dumb(d')(Dick)(w)], \\ \lambda x\lambda w . \exists d'[dumb(d')(x)(w)\ \land\ \neg foolish(d')(Dick)(w)], \\ \lambda x\lambda w . \exists d'[foolish(d')(x)(w)\ \land\ \neg dumb(d')(Dick)(w)], \\ \lambda x\lambda w . \exists d'[foolish(d')(x)(w)\ \land\ \neg foolish(d')(Dick)(w)], \\ \hspace{4cm} \vdots \end{array} \right\}$$

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broader picture to make this assumption.

The process reflected in (69) is similar. The alternatives arrived at in (68) are applied to each of the alternatives in $[\![\,than\ Dick\,]\!]^d$, which amounts to saturating the outermost argument position (the λf) of each alternative from (68) with each alternative in $[\![\,than\ Dick\,]\!]^d$. This all would have the consequence that *more dumb than Dick* would, interpreted with absolute precision, hold of an individual that is dumb to a degree that Dick isn't. Interpreted with lower degrees of precision, predicates resembling *dumb* are introduced into the mix.

There is something peculiar about some of resulting alternatives: many of them compare related but distinct adjectives. Some of the alternatives in (69) reflect the claim that *x* is dumb to a degree to which Dick isn't foolish. There are two possible outcomes in a case such as this. If *foolish* and *dumb* compare along different scales, as presumably they do, the alternatives that require comparing these incommensurable adjectives stand no chance of being true. There is no degree for which both *dumb* and *foolish* are defined, and this is the case irrespective of how dumb or foolish any particular individual is. In this respect, these alternatives are irrelevant.[25] There is another possibility, though. Two adjectives might be so similar that they measure along the same scale. Such alternatives would survive.

5.3   *The Syntax of Metalinguistic Comparatives*

Before we can return to the semantics of MCs themselves, it will be necessary to make some tentative syntactic assumptions. Providing a complete account of the syntax of MCs would be a significant undertaking, since there is a surprising degree of complexity and idiosyncrasy in this area, and I leave it to future research. (It will however be explored further in 5.6; for additional steps in this direction, see also Embick 2007 and McCawley 1998, p. 700-701 for English and Giannakidou & Stavrou 2008, Giannakidou & Yoon 2009 for Greek and Korean.)

As McCawley observes, *more*$_{\text{ML}}$ in English can occur after an adjective, unlike ordinary *more* ((70) and (71) repeat earlier examples):

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[25]There is a non-innocent assumption here: that alternatives in which there is failure of presupposition are simply disregarded. It would be at least as plausible a priori to suppose that any such alternatives simply crash the whole computation, preventing any alternative set from being generated. But if this were the case, it would render it nearly impossible to utter a comparative without presupposition failure. There is already a mechanism built into the system—inherited directly from Lasersohn (1999)—to reflect such effects: the context parameter. It determines the contents of halos, and therefore alternative sets, by defining an appropriate similarity relation. There is no context under which an alternative that induces failure of presupposition would count as sufficiently similar to one that does not.

(70) a. George is dumb more than crazy.
      b. Your problems are legal more than financial.   (McCawley 1998)

This suggests that $more_{ML}$ does not occupy the Deg position of the adjective it occurs with. If it did occur there, it would also be surprising that $more_{ML}$ is not restricted to adjectives:

(71) a. I am more machine now than man.
      b. The dog is sitting more on your head than in your lap.

A natural conclusion to draw from these facts is that MCs involve adjunction. This would account for the ability of $more_{ML}$ to occur on either side of an expression, and for its relative cross-categorial freedom. It would also account for why synthetic (*-er*) comparatives can't express metalinguistic comparison. The formation of synthetic comparatives involves a connection between the Deg head and the adjective that heads its complement. Perhaps the connection is made by head movement, or perhaps by more sophisticated means (Embick 2007). Either way, this connection could not be made if $more_{ML}$ is an adjunct.

In addition, something must preclude stacking MCs as in (72):

(72) a. *I am more [more machine now than man] than robot.
      b. *I am [more machine now than man] more than robot.

This, however, is already expected to be at best strange given the (as yet non-compositional) semantics already assumed, which has as a consequence that MCs are not themselves imprecise and therefore not sensitive to further manipulation of precision immediately above them. There also seem to be some nontrivial parsing difficulties here.

In sentences in which $more_{ML}$ is postposed, there is clearly a single constituent like $more_{ML}$ *than crazy* to be adjoined. This is not the case when $more_{ML}$ and *than*-phrase are discontinuous, as in $more_{ML}$ *dumb than crazy*. There are (at least) two analytical options here. One is to assume that $more_{ML}$ *than crazy* is nevertheless a constituent here underlyingly, and that the *than*-phrase is extraposed. This is often assumed for ordinary comparatives (see Bhatt & Pancheva 2004 for a recent overview). Another option, more consistent with the kind of syntax for ordinary comparatives adopted here, is to assume that in these cases, $more_{ML}$ and the *than*-phrase are adjoined separately, one above the other, and that the connection between them is semantic. I will take the latter course.[26]
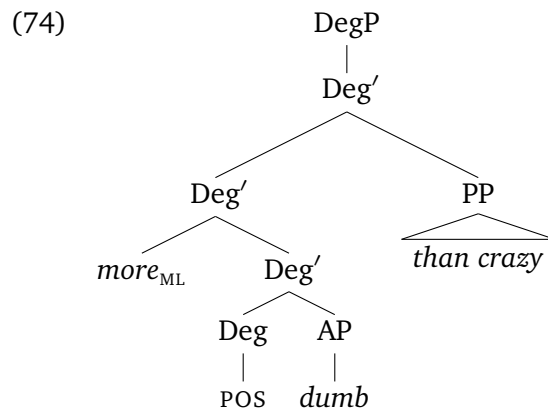
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[26]This assumption does give rise to a semantic puzzle. If $more_{ML}$ forms a constituent with the *than*-phrase in some cases but not in others, the order of its arguments will vary: the *than*-

The next issue to be settled is what *more*$_{\text{ML}}$ adjoins to. In adjectival contexts, it seems to be the DegP, because it can co-occur with overt degree words:

(73) a. George is more really dumb than really crazy.
   b. That meeting was less slightly unpleasant than profoundly agonizing.
   c. Gordon is more vaguely resentful of Nick than particularly angry at him.

This, alongside the independent evidence that *more*$_{\text{ML}}$ is an adjunct, implies that when it does occur with bare adjectives, something else must occupy the Deg position. The standard assumption about what occurs in the Deg position of positive adjectives is a null degree morpheme POS (von Stechow 1984, Rullmann 1995, Kennedy 1997 and others).

The structure of *more*$_{\text{ML}}$ *dumb than crazy*, then, is as in (74):

(74)

```
                         DegP
                          |
                         Deg′
                        /    \
                    Deg′      PP
                   /    \    /    \
           more_ML    Deg′  than crazy
                     /    \
                  Deg      AP
                   |        |
                  POS     dumb
```

This makes the simplifying assumption—probably false (section 5.6)—that *more*$_{\text{ML}}$ does not project further phrase structure above it.

5.4   *Building the Semantics of Metalinguistic Comparatives*

It is now possible to build the denotation of MCs compositionally. The first step will be to observe that in general—or in any case, when it adjoins to DegP—*more*$_{\text{ML}}$ occurs with an expression that denotes sets of properties. The

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phrase first in the former cases, second in the latter. This is not a problem particular to MCs, though, so I will set it aside. It arises equally on this kind of syntax for ordinary comparatives in non-adjectival contexts, such as *George fears Dick more than Laura.* See Corver (1990) and Neeleman et al. (2004) for some pertinent discussion.

denotation of POS *dumb,* for example, is built up from the Hamblinized (but otherwise relatively standard) denotation for POS in (75), to yield (76):

(75) $[\![\,\text{POS}\,]\!]^d = \{\lambda g_{\langle d, et\rangle} \lambda x \lambda w \,.\, g(standard)(x)(w)\}$

(76) $[\![\,\text{POS } dumb\,]\!]^d = \{\, \lambda x \lambda w \,.\, g(standard)(x)(w) : g \in [\![\, dumb \,]\!]^d \,\}$

$$= \left\{ \begin{array}{l} \lambda x \lambda w \,.\, dumb(standard)(x)(w), \\ \lambda x \lambda w \,.\, foolish(standard)(x)(w), \\ \vdots \end{array} \right\}$$

The POS morpheme causes a gradable adjective to be interpreted with respect to a contextually provided standard, resulting in denotations such as the ones in (76). In essence, this recapitulates more explicitly what was already proposed in section 4.2. For this reason, from here on I will abbreviate $[\![\,\text{POS } dumb\,]\!]$ as $[\![\, dumb \,]\!]$.

But it can't be the case that *more*$_{\text{ML}}$ actually takes a property as its first argument. Because it existentially quantifies over degrees of precision, it needs a means to access the degree-of-precision parameter of the expression it combines with. There needs to be a mechanism to give it that access. In (77), it is treated as a node in the syntax, PREC, but one could think of it as a type shift or rule of composition if inclined:

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

This simply binds the precision parameter and makes it available to the computation as an argument. It does for degrees of precision what the classical Montagovian $^\wedge$ operator does for worlds.

This will help build the argument for *more*$_{\text{ML}}$, but it does not yet tell us what the content of *more*$_{\text{ML}}$ will be. To do that, it makes sense to begin with ordinary *more.* This is not because they are identical or even nearly so—as I have argued, they are not. But there does seem to be a real parallel. For one thing, as observed in section 2.4, it seems to be the case across a number of languages that the morphemes for ordinary and metalinguistic comparison are either homophonous or involve the addition of additional morphology. For another, there must be a path of historical development which leads from one form to the other, so it makes sense to let it be our guide. The denotation of ordinary *more* in (67) was this:

(78) $[\![\, more \,]\!]^d = \{\lambda g_{\langle d, \langle e, st\rangle\rangle} \lambda f_{\langle d, st\rangle} \lambda x \lambda w \,.\, \exists d' [g(d')(x)(w) \wedge \neg f(d')(w)]\}$

more$_{\text{ML}}$ combines not with a comparative clause of the ordinary variety, but rather a *than*-phrase (whose precise character I have not addressed)

consisting of something of the same syntactic category as its first argument. To reflect this parallelism, the type of the second argument should be made to match the first:

(79) $[\![more]\!]^d = \left\{ \lambda g_{\langle d, \langle e, st \rangle \rangle} \lambda f_{\langle d, \langle e, st \rangle \rangle} \lambda x \lambda w \,.\, \exists d' \begin{bmatrix} g(d')(x)(w) \wedge \\ \neg f(d')(x)(w) \end{bmatrix} \right\}$

Unlike ordinary more, $more_{\mathrm{ML}}$ seems to 'pop out' of the alternative system—it seems to exist not within the mechanisms language affords for imprecision, but above them. This is the sense in which it is 'meta'. The most direct way to reflect this idea would be to simply dispense with the set curly brackets around this denotation, leaving $more_{\mathrm{ML}}$ non-Hamblinized. This won't quite work, however. It does not pop out of the alternative system so thoroughly as that. Rather, $more_{\mathrm{ML}}$ seems to pop out of it with respect to its first two arguments. The expression it modifies and the *than*-phrase both must have their precision manipulated, and in that sense, $more_{\mathrm{ML}}$ rises above them. It does not do this with respect to its individual argument, though, or of course its world argument. So what we might want is something like (80):

(80) $[\![more_{\mathrm{ML}}]\!]^d = \lambda g_{\langle d, \langle e, st \rangle \rangle} \lambda f_{\langle d, \langle e, st \rangle \rangle} \left\{ \lambda x \lambda w \,.\, \exists d' \begin{bmatrix} g(d')(x)(w) \wedge \\ \neg f(d')(x)(w) \end{bmatrix} \right\}$

Doing this, however, has combinatorial consequences that seem manifestly problematic. If the sole rule of semantic composition in the system were Hamblin Functional Application, this could not combine with anything because it does not denote a set of alternatives. In the Kratzer & Shimoyama (2002) flavor of Hamblin alternative semantics, there are several other rules, but none of them would help. What would help is ordinary, non-Hamblinized functional application. For this reason, we should, as suggested in section 5.1, hang onto it.

This still doesn't quite make sense of the situation. It means that (80) could combine directly with something of type $\langle d, \langle e, st \rangle \rangle$. Using PREC, we could in fact create something of this type by applying it to a property. But we couldn't create something of this type by applying it to a Hamblin *set* of properties. The only way out, given these assumptions and the denotation in (80), would be to somehow turn such a set of properties into a single one. This, however, is actually relatively straightforward. There is already a method in the system for getting out from a set of alternatives: existential closure. This is how, once the alternative set a sentence denotes has been computed, we can assign the sentence a truth value: the sentence is true if its denotation contains a true alternative. In section 5.1, existential closure was represented directly in the syntax and defined this way:

(81) $[\![\exists\, \alpha]\!]^d = \lambda w \,.\, \exists p [p \in [\![\alpha]\!]^d \wedge p(w)]$

As pointed out there, it is an existing feature of the Kratzer and Shimoyama system that existential closure can take place not only at the top of the tree, but also at intermediate points. This is very much in the spirit of the original idea in Heim (1982) and Kamp (1981) as well. The definition in (81) restricts existential closure to expressions that denote sets of propositions. This restriction is not, of course, a logical necessity, and one could define existential closure in a generalized way that does not insist on this. That is what I propose to do. What we will need in particular is for existential closure to apply to Hamblin-sets of properties, as in (82):

(82) $[\![\exists \alpha]\!]^d = \lambda x \lambda w \,.\, \exists f[f \in [\![\alpha]\!]^d \wedge f(x)(w)]$

Rather than yielding a single proposition, this yields a single property. Of course, because it does not yield a set of alternatives, it would lead to a type clash when, as is usually the case, the next node up expects to encounter an alternative set.

   That is, however, precisely the sort of possibility we were entertaining. If $more_{\text{ML}}$ has a denotation like the one in (80), it will actually *expect* to find an ordinary, non-Hamblinized property. So the independently necessary existential closure operation, if freed from the stipulation that it must apply to sets of propositions, provides exactly the missing ingredient. It becomes not just a way of mapping from alternatives to ordinary values once the top of the tree is reached, but a general means of doing so anywhere.

   This can now all be put together. The denotation in (80) needs to find as its argument a function of type $\langle d, \langle e, st \rangle \rangle$. PREC provides a means of getting there from a simple property. And existential closure provides a means of getting to a simple property from a set of property alternatives. In the recurring example, then, the denotation of the first argument of $more_{\text{ML}}$ will be as in (83):

(83)   a. $[\![\exists \, dumb]\!]^d = \lambda x \lambda w \,.\, \exists f[f \in [\![dumb]\!]^d \wedge f(x)(w)]$

   b. $[\![\text{PREC} \, \exists \, dumb]\!]^d = \lambda d' \,.\, [\![\exists \, dumb]\!]^{d'}$

   $= \lambda d' \lambda x \lambda w \,.\, \exists f[f \in [\![dumb]\!]^{d'} \wedge f(x)(w)]$

The result is a function that relates a degree of precision and an individual if at that degree of precision there is an alternative in $[\![dumb]\!]$ that holds of the individual (in the evaluation world).

   This is of a type $more_{\text{ML}}$ can apply to:[27]

_____

[27] I've renamed variables in (84) and (85) to avoid clashes.

(84) a. $[\![\,more_{\mathrm{ML}}\,]\!]^{d'} = \lambda h_{\langle d,\langle e,st\rangle\rangle}\lambda i_{\langle d,st\rangle}\left\{ \lambda x\lambda w\,.\,\exists d\begin{bmatrix} h(d)(x)(w) \wedge \\ \neg i(d)(x)(w) \end{bmatrix}\right\}$

   b. $[\![\,more_{\mathrm{ML}}\,]\!]^{d}\,([\![\,\mathrm{PREC}\,\exists\,dumb\,]\!]^{d}) =$

   $\lambda i_{\langle d,st\rangle}\left\{ \lambda x\lambda w\,.\,\exists d'\begin{bmatrix} \exists f[f\in[\![\,dumb\,]\!]^{d'}\wedge f(x)(w)] \wedge \\ \neg i(d')(x)(w) \end{bmatrix}\right\}$

This leaves $more_{\mathrm{ML}}$ with an unsaturated argument corresponding to the *than*-phrase. Following the outline of the tree in (74), the next overt element is *crazy*. The same process must be repeated there, for all the same reasons as before:

(85) $[\![\,\mathrm{PREC}\,\exists\,crazy\,]\!]^{d} = \lambda d'\,.\,[\![\,\exists\,crazy\,]\!]^{d'}$

   $= \lambda d'\lambda x\lambda w\,.\,\exists g[g\in[\![\,crazy\,]\!]^{d'}\wedge g(x)(w)]$

Combining (85) with (84) results in (86):

(86) $[\![\,more_{\mathrm{ML}}\,]\!]^{d}\,([\![\,\mathrm{PREC}\,\exists\,dumb\,]\!]^{d})([\![\,\mathrm{PREC}\,\exists\,crazy\,]\!]^{d})$

   $= \left\{ \lambda x\lambda w\,.\,\exists d'\begin{bmatrix} \exists f[f\in[\![\,dumb\,]\!]^{d'}\wedge f(x)(w)] \wedge \\ \neg\exists g[g\in[\![\,crazy\,]\!]^{d'}\wedge g(x)(w)] \end{bmatrix}\right\}$

What remains is an alternative set of properties, which can then be combined with the subject by pointwise—rather than ordinary—function application. It the subject is $[\![\,George\,]\!]^{d}$, this yields (87):

(87) $\left\{ \lambda w\,.\,\exists d'\begin{bmatrix} \exists f[f\in[\![\,dumb\,]\!]^{d'}\wedge f(George)(w)] \wedge \\ \neg\exists g[g\in[\![\,crazy\,]\!]^{d'}\wedge g(George)(w)] \end{bmatrix}\right\}$

This is exactly what the original denotation in (51) in section 4.3 would do.

   Stepping back a bit, the overall picture that has emerged in this section is one in which the denotation we began with has been built up compositionally from independently motivated parts. One of these is the syntax for MCs proposed in the previous section. Another is the denotation of ordinary *more*. The others are the PREC and existential closure operators. The original denotation for $more_{\mathrm{ML}}$ looked a bit different from that of ordinary *more* because it included existential quantification over alternatives. It would be perfectly reasonable to suppose that this is just part of the meaning of $more_{\mathrm{ML}}$. What this discussion has showed, though, is that this is actually not necessary. This existential quantification is built into what it means to claim that something is true on the basis of an alternative set. It is part of the logic of alternatives. It makes sense, then, that it need not come from $more_{\mathrm{ML}}$

itself, but rather can come from the general existential closure operation that reflects the relation between alternative sets and assertions based on them.

Deriving this component of the meaning of *more*$_{\text{ML}}$ in this way puts existential closure itself in a slightly different light: it becomes not just a means by which one can 'pop out' of an alternative set at the top of a tree, but rather a generalized means of doing so anywhere. It becomes a kind of type shift, moving from the Hamblinized system to the ordinary one. Because alternatives here are being used to model imprecision, this moves from a system subject to imprecision to a system that modulates it. In principle, however, the same understanding could be put to other ends.

Now that the (relevant) existential quantifiers in the original denotation of *more*$_{\text{ML}}$ are coming from another source, one might ask what difference between ordinary *more* and metalinguistic *more*$_{\text{ML}}$ is. They are, after all, far from identical. The fundamental answer is in what 'level' they operate on. They do indeed parallel each other, but ordinary comparatives operate within the system of imprecision and metalinguistic ones above it. Concretely, ordinary *more* denotes a set of alternatives, while its metalinguistic counterpart denotes a function that eventually yields a set of alternatives. Accordingly, ordinary *more* combines with its arguments by pointwise function application, while its metalinguistic counterpart combines with its first two arguments by plain function application. Because *more*$_{\text{ML}}$ requires insertion of a PREC operator, it compares a different kind of degree. And of course the syntax of the two is rather different. So there is indeed a deep parallel, but also an unmistakable distinction.

5.5 *Beyond Properties*

The denotation proposed in the previous section would restrict *more*$_{\text{ML}}$ to expressions that denote sets of properties. This seems to be where they are most uniformly accepted across speakers. But there are apparently clausal uses, such as (88):

(88) a. Clarence is a syntactician more than Herman is a semanticist.
       b. George is afraid of Dick more than David is fond of him.

A reasonable way of understanding (88a), for example, is that *more*$_{\text{ML}}$ is comparing the precision of *syntactician* with the precision of *Herman is a semanticist*. This shows that at least the *than*-phrase can be a full clause and therefore presumably denote sets of propositions. In that respect, these examples are perfectly analogous to ordinary comparatives with overt comparative clauses (e.g., *Clarence is taller than Herman is tall*). A small change in the current denotation would suffice:

(89) $[\![\,more_{\text{ML}}\,]\!]^{d} = \lambda g_{\langle d, \langle e, st\rangle\rangle} \lambda f_{\langle d, st\rangle} \left\{ \lambda x \lambda w \, . \, \exists d' \begin{bmatrix} g(d')(x)(w) \, \wedge \\ \neg f(d')(w) \end{bmatrix} \right\}$

This simply changes the type of f and deletes its individual argument. If this is correct, a process of ellipsis would be required to account for the other examples discussed so far, in which the overt portion of the *than* phrase is not clausal. But such ellipsis wouldn't be particularly surprising, since it would amount to a particular flavor of the familiar kind of comparative ellipsis.

In Greek and Korean, it may be the case that *both* compared arguments of an MC can propositional. Giannakidou & Yoon (to appear) observe that in these languages, there is a variety of comparative that can express preference (see section 2.5), and they argue that these should be regarded as metalinguistic. If they are right in this, and if Greek and Korean are like English in the relevant respect, the denotation proposed above would have to be further modified to allow comparisons between propositions—the change reflected in (89) would have to be made with respect to the first argument as well.

The situation is a bit more complicated in cases where it seems to be relations that are compared. To varying extents, speakers accept (90):

(90) a. ?George more fears than loves Dick.

  b. ?Mary more respects than admires John.

If MCs were truly restricted to properties alone, these should be impossible.

There are several analytical options one might pursue in light of this data. The first would be to conclude that MCs are less type-theoretically discriminating in their choice of arguments than previously thought. Perhaps what is needed is a theory of 'generalized metalinguistic comparison'. The natural analogy is to generalized conjunction (Partee & Rooth 1983, Keenan & Faltz 1985, Lasersohn 1992, Winter 1996 among others). A guiding idea in this area is that the generalized conjunction operator can be defined recursively to conjoin a large class of predicates. There is no reason in principle why this approach wouldn't work with MCs as well. But as an empirical issue, it is not actually obvious this is desirable. The evidence that MCs can compare relations is relatively weak, consisting as it does of a handful of cases of somewhat dubious well-formedness. In English, the evidence that MCs can compare propositions is also at best unclear. This contrasts starkly with how genuine type-theoretic flexibility behaves—we feel no reluctance, for example, in concluding *and* can conjoin relations.

An alternative approach would be to follow Giannakidou & Stavrou (2008) and Giannakidou & Yoon (2009, to appear) in treating MCs as inherently proposition-comparing—with respect to *both* arguments—and rely on some process of syntactic ellipsis to achieve the apparent flexibility. In the *than*-phrase, ellipsis is entirely to be expected. It would be more surpris-

ing in the first argument of $more_{ML}$. Nevertheless, it is in principle a possibility, and a sufficiently sophisticated syntax may be able to accomplish it. It may be possible, for example, to derive sentences such as (90) by something like right-node raising.[28] In *George more fears than loves Dick*, it may be the case that a *Dick* has moved, in an across the board fashion, out of two full VPs, *fears Dick* and *loves Dick*.

The third alternative is the one I will adopt. It is to simply take metalinguistic degree words to be ambiguous. That is, the basic $more_{ML}$ is as proposed in preceding sections. In some idiolects, it has a homophonous counterpart that can compare relations. This is not the most theoretically elegant option. It is, however, most consistent with the variable or degraded status of (90). One way to distinguish these various analytical options empirically might be to determine whether it would be necessary to stipulate such an ambiguity for all metalinguistic degree words. Indeed, there does seem to be some variation of this sort. *Less* causes the comparisons in (90) to degrade even further:

(91)   a. *?George less fears than loves Dick.
  b. *?Mary less respects than admires John.

This could of course just mean that not all MCs are type-theoretically flexible. But equally, it could mean that *less* just lacks the necessary kind of homonym.

One additional point about these issues is in order. There are certain types (or possibly syntactic categories) that manifestly can't support MCs:

(92)   a. *More all than many dogs like socks.
  b. *Clarence poked more every than some monkey.
  c. *She more $\left\{ \begin{array}{l} \text{must than can} \\ \text{will than might} \end{array} \right\}$ chase squirrels.

If MCs are simply not type-theoretically flexible, all this is to be expected. It may, however, be the case that even in the absence of this assumption, the ill-formedness of these sentences is expected.[29]

5.6   *Other Metalinguistic Degree Expressions*

The discussion so far has focused on metalinguistic *more*, but this is by no means the only metalinguistic degree word. *Less* and *as much* have metalin-

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[28]A reviewer pointed out this connection.

[29]An anonymous reviewer points out that there may be non-type-theoretic problems in these sentences as well—they may run afoul of general constraints on admissible orderings of precision alternatives.

guistic uses as well:[30]

(93) a. George is less crazy than dumb.
      b. George is as much crazy as dumb.

The denotation above is for *more*$_{ML}$ alone. Metalinguistic *less* and *as much* would require distinct metalinguistic denotations. For *less*, one might simply replace > in (67) with <. For *as*, > would be replaced with ≤ (or conceivably =, depending on one's assumptions about equatives).

  Some caution is warranted here before we find ourselves too wantonly proliferating degree relations. It's certainly not the case that *any* degree morpheme can be metalinguistic:

(94) a. $^{??}$George is as crazy as dumb.

      b. George is $\left\{\begin{array}{l} \text{too} \\ \text{very} \\ \text{certainly} \end{array}\right\}$ crazy.

      c. George is $\left\{\begin{array}{l} \text{almost} \\ \text{barely} \\ \text{half} \end{array}\right\}$ crazy.

None of these seem to get a metalinguistic reading. The examples in (94c) especially might have been expected to be possible, since they contain the sort of degree modifiers that are compatible with closed scales (Kennedy & McNally 2005, Rotstein & Winter 2001). The scale of precision is in fact closed (in any case, I have assumed that it is).[31] No especially deep account is required of these facts—it is sufficient that the relevant degree modifiers not be provided with metalinguistic homonyms.

  It is also not the case that metalinguistic degree words have a uniform syntax. There are several additional quirks. One of these is that *less* cannot be right-peripheral:

(95) a. *George is crazy less than dumb.
      b. *George is crazy less than dumb.
      c. *Your dog is in your lap less than on your head.
      d. ?Clarence is a syntactician less than a semanticist.

NP-modifying uses have an unclear status. They are considerably improved, but it is not obvious the resulting reading is actually a metalinguistic one. *As much* also behaves similarly, though the judgments become less clear:

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[30]Thanks to Alan Munn (p.c.) for pressing this point.

[31]This observation and (94) are due to an anonymous reviewer.

(96) a. *?George is crazy as much as dumb.
    b. *?George is crazy as much as dumb.
    c. *Your dog is in your lap as much as on your head.
    d. Clarence is a syntactician as much as a semanticist.

This presents a problem. If metalinguistic *less* and *as much* are adjuncts, some independent syntactic principle would need to rule out right-adjunction. It may suffice to appeal to the Linear Correspondence Axiom (Kayne 1994), but this would rule out right-adjunction for *more* as well. Or, it may be the case that metalinguistic degree words are not adjoined after all—perhaps they are functional heads. This would again fail to explain why *more* can occur on the right, although in this case it is easier to see how additional stipulations may be able to capture the difference. The apparent rightward position of *more* may result from movement of its complement to its specifier:

(97) George is [$_{?P}$ dumb$_1$ [$_{?'}$ [$_{?'}$ more t_1] than crazy].

Such movement would have to be ruled out for *less* and *as much*, but one could presumably do this by making the right assumptions about what syntactic features these bear. I will not pursue this possibility further here.

    There are also a number of quirks involving secondary degree modification of metalinguistic *more* and its cousins:

(98) a. George is $\left\{ \begin{array}{l} \text{much} \\ \text{?slightly} \\ \text{??somewhat} \\ \text{??a lot} \\ \text{?no} \end{array} \right\}$ more dumb than crazy.

    b. George is dumb $\left\{ \begin{array}{l} \text{much} \\ \text{*?slightly} \\ \text{*?somewhat} \\ \text{*?a lot} \\ \text{*?no} \end{array} \right\}$ more than crazy.

I can offer no explanation of this. A reviewer points out that to the extent that some of these are good, they induce a comparison of deviation reading. Similarly mysterious is the ill-formedness of (99a), which would seem to resemble the grammatical (99b):

(99) a. *I am machine now more than man
    b. I am more machine now than man.
    c. *I am more machine now.

I have no account of this either, or of why (99b) is grammatical at all, in light of the ungrammaticality of (99c).

It may also be the case that MCs can sometimes occur without any overt material to modify:

(100) a. Clarence is more than ugly.
      b. Clarence is less than ugly.
      c. *Clarence is as much as ugly.

(101) a. She's more than my dog. She's (also) my psychiatrist.
      b. *She's less than my dog. She's (merely) my psychiatrist.
      c. *She's as much as my dog. She's my psychiatrist.

If these were MCs, they would be profoundly puzzling, because it is not clear in these cases what it is that is having its relative precision evaluated. Given the proposal here, one might suppose that these involve existential quantification over salient properties. Since presumably there is always a property that's both salient and absolutely true, all a sentence such as (101a) would mean is that the (maximal) precision of *Clarence is ugly* is not 1. This is a very weak claim, but it is in fact very hard to imagine circumstances under which *Clarence is more than ugly* would be false.

It might, however, be the case that there is something else entirely going on here, perhaps unrelated to metalinguistic comparison: these structures may involve type-shifting properties into their individual correlates (Chierchia 1984, Partee 1987, Chierchia 1998) or in some other way, and therefore do something much closer to ordinary quantification over individuals. Partee (1987) explicitly suggests this for *He is everything I hoped he would be* and *They said she was beautiful, and she was that*.

5.7 *Returning to the Original Data*

Now that the proposal has been laid out, it may be helpful to return very briefly to the empirical observations made in section 2 and consider what has been explained.

First, the impossibility of MCs with *-er* follows from the fact that metalinguistic *more* is a distinct morpheme from ordinary *more*. More precisely, it does not occupy the position of a degree head, so it is not in the right syntactic configuration to make *-er* suffixation possible.

Second, the compatibility of MCs with non-gradable adjectives follows from the fact that degrees of precision come from a different source than the degrees lexically associated with adjectives. Indeed, because metalinguistic *more* is defined 'on top of' the system of alternatives rather than within it,

it couldn't in principle combine with an adjective with an unsaturated degree argument.

Third, MCs place no syntactic or semantic requirements on the expressions they modify apart from being of the right semantic type, so their cross-categorial distribution follows.

Fourth, it is expected that in some languages, MCs should be expressed with entirely distinct morphemes. The denotation of metalinguistic *more* in English resembles that of ordinary *more*, but it is not identical to it. There is every reason to expect that other languages might choose to express this difference overtly. At least in Korean (Giannakidou & Yoon 2009, to appear) and Japanese (Sawada 2007), this is done with a morpheme that means, roughly, 'say'. It would be too strong to say that this is expected on this view. Indeed, perhaps it is unexpected, since it would seem to accord with an utterance-oriented view of the sort considered in 6. But from another perspective, it is quite natural. The denotations proposed here require two additional operators to function. The first is existential closure. As Kratzer & Shimoyama (2002) demonstrate, this can be spelled out overtly, and in Japanese, it is. The other operator is the PREC operator. Perhaps it can be spelled out overtly as well, as the 'say' morpheme. It does after all provide access to a parameter of evaluation, and in this way it makes reference to the utterance situation.

The fifth point is the least clear-cut. It seems to be the case that in general, MCs give rise to the implicature—but not entailment—that the modified expression holds of an individual. Certainly, the proposal ensures that there is no such entailment. One linguistic expression can be more nearly true than another, while both are false. To detect the source of the implicature, will help to be more explicit about its content. It is not that the modified expression holds of an individual absolutely, but rather that the speaker regards the modified expression as sufficiently precise to count as holding. In *George is more dumb than crazy*, for example, the implicature is that the speaker regards *dumb* as sufficiently precise to count as holding of George. In general terms, an addressee presented with such a sentence would be entitled to ask, putting it very loosely, why the speaker would have mentioned *dumb* if it didn't hold. If the speaker has made a claim about the relative precision of *dumb* and *crazy*, the addressee can conclude—by the usual Gricean relevance reasoning—that their relative precision is somehow relevant. If, moreover, the predicate *dumb* was volunteered by the speaker and not already under discussion, the addressee is left to work out why the speaker might regard the relative precision of *dumb* and *crazy* as relevant. The natural hypothesis is that the speaker has volunteered *dumb* because she regards it as close enough to true. If it weren't, there would have to be an independent reason for having mentioned it. This reasoning would

suggest that the implicature should be absent if there is, in fact, such an independent reason. This seems to be the case. When the relative precision of *dumb* and *crazy* is explicitly under discussion, as in (102), the implicature does not arise:

(102) survey-taker: Is George dumb, crazy, both, or neither?
       respondent: He's more dumb than crazy.

Indeed, in (102) the implicature actually arises that he is *not* dumb, because if he were, it would have been briefer and more informative (and therefore more cooperative) to simply say that he *is* dumb. None of this relies on the compositional machinery proposed here. It is not even clear that it relies on relative precision in particular rather than some other way of comparing predicates. But it does show that the means of structuring the semantics advocated here is compatible with such a pragmatic account.

5.8   *Giannakidou & Yoon and the Cross-Linguistic Picture*

It is worthwhile at this point to compare the kind of theory we have arrived at to Giannakidou & Yoon (to appear) (henceforth G&Y), which is a sustained analysis of MCs in Greek and Korean and which specifically contrasts their approach with one considered in an earlier version of this paper.

First, it's worth observing an overall difference in methodological strategy. My strategy here has been to try to restrict what MCs do as much as possible, to exclude contexts in which they can't be felicitously used. G&Y instead adopt a strategy of accommodating a wide range of examples, which would presumably have to be further restricted to exclude such contexts. In part for this reason, theirs is probably the more flexible approach. This is particularly important from a cross-linguistic perspective. While imprecision is a more narrowly defined concept than generalized preference, it doesn't come equipped with as many theoretical knobs to fine-tune. So there is a trade-off here between explicitness and flexibility.

G&Y also point out some potential obstacles for the kind of approach advocated here. One of them is that MCs must be able to compare propositions or sentences. These are slightly different claims, at least if *sentence* is taken to mean something distinct. The first claim is addressed explicitly in section 5.5: MCs may very well compare propositions. There is nothing in the overall approach pursued here to prevent this. The comparison of *sentences* is something else entirely, and that is addressed at length in section 6 below. To preview the discussion, the alternatives-based system can be elaborated to accommodate such comparison, even without giving up the idea that it is imprecision that is being compared. The proposal they pursue does not

actually make explicit what mechanism achieves the comparison of sentences (rather than propositions).

Another concern G&Y express is that MCs can in principle compare 'totally unrelated predicates like *tall* and *intelligent* or *die* and *marry*'. These pairs behave slightly differently. It is true that *tall* and *intelligent* can be compared using MCs, at least in the right context. There are slight issues of quasi-incommensurability here, of the sort considered in section 4.5, but these can be overcome with sufficient effort. That being the case, there is nothing in the current proposal that would prevent their relative precision from being compared. Indeed, the greater concern is that taking MCs to compare imprecision may be *insufficiently* restrictive, in that something independent must account for quasi-incommensurability. This concern is actually even more pressing in their analysis, where it is an explicit aim to make the comparison of unrelated predicates possible. As for *die* and *marry*, again, if there were an appropriate context, their relative precision could be compared. What the imprecision approach can't do in principle is reflect propositional attitudes of overall preference, such as preferring death to marriage. This kind of preference is, one might have thought, a different beast entirely from MCs (as I have construed the term here). G&Y in fact do acknowledge that there is a distinction to be made here. So the question is only one of how similar the two kinds of comparative should be taken to be.

All that said, the G&Y approach could actually in large measure be recast in the alternative-semantic framework I advocate here, keeping constant all the compositional assumptions. It would require simply changing the ordering relation on alternatives. In the current framework, they are ordered by their relative precision. In a G&Y-style implementation, they would be ordered by their preferability. The only relevant limitation in the proposal as it stands is that it involves comparing meanings rather than utterances, but as section 6 will show, it can be modified to achieve this as well.

The most important thing to be said about the two approaches, however, may be that they agree on a fundamental point: that metalinguistic comparison is a profoundly grammatical phenomenon rather than an extralinguistic one.

6 How 'Metalinguistic'?

6.1 *Quotation*

The approach advocated here represents the 'metalinguistic' phenomenon here in purely *grammatical* terms, without reference to extralinguistic or extra-grammatical considerations. The alternative is rather unappealing, as it would entail construing overt morphemes with a distinct syntax as somehow

extra-grammatical. It is, however, possible to take a step in the metalinguistic direction without going quite so far as this.

On the approach proposed here, MCs compare *meanings*, not utterances. There is an alternative. Potts (2007) proposes a means of understanding metalinguistic negation as (essentially) a species of quotation. This makes possible a grammatical analysis of a metalinguistic phenomenon that *does* permit reference to utterances rather than merely meanings. Perhaps metalinguistic comparison is similarly utterance-oriented—Lechner (2007) actually provides a general picture of such a theory, and Giannakidou & Yoon (2009) have pursued this possibility as well.

If this is on the right track, metalinguistic comparison should mirror the quotative-like properties of metalinguistic negation.[32] This is an appealing idea, and not really incompatible with anything I have suggested here. I will take some tentative steps to explore this possibility in the remainder of this section. It should be noted at the outset, though, that this will require negotiating some empirical difficulties, and it will come at the price of invoking some powerful and relatively untested theoretical machinery.

As evidence of the connection between metalinguistic negation and quotative structures, Potts observes a parallel between sentences such as (103) and (104):

(103) a. He didn't order '[eɪ]pricots'; he ordered '[æ]pricots'.
      b. He didn't call the POlice; he called the poLICE.   (Horn 1985)

(104) a. When in Santa Cruz, Peter orders '[eɪ]pricots' at the local market.
      b. When in Amherst, Peter orders '[æ]pricots' at the local market.

The normal way to interpret the metalinguistic negation facts in (103) is that they show truth-conditionally identical utterances are contrasted, one of them negated. This would only be possible if it were the utterances themselves, with their particular pronunciation, that were being contrasted. What (104) shows is that it is more generally possible to distinguish different pronunciations of truth-conditionally identical expressions.

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[32]One piece of evidence of a similarity between metalinguistic comparatives and metalinguistic negation in English is that neither can be expressed with (derivational) bound morphemes: *un-* and *im-* fail to support metalinguistic negation just as *-er* fails to support metalinguistic comparison. If this generalization were cross-linguistically robust, it would indeed suggest a deep parallel. But in the relatively little work on MCs that has been done, counterexamples to this have already emerged. In both Japanese and Korean, the metalinguistic comparison marker is made up of a particle that means something like 'say' and an ordinary comparison morpheme: Sawada (2007) demonstrates this for Japanese *iu-yori* (glossed 'say-than') and Giannakidou & Yoon (2009) for Korean *kipota* (glossed 'saying.than').

6.2 *Are Metalinguistic Comparatives Quotative?*

How, then, do MCs perform with respect to the apricot diagnostic? It isn't clear:

(105) a. ??He more ordered [eɪ]pricots than [æ]pricots.
       b. ??He called more the POlice than the poLICE.

These are not word salad, as one might have suspected if it is only meanings, and not utterances, that are being compared. But they are distinctly odd and difficult to make sense of, and require an unusually cooperative addressee. The situation is improved considerably in (106):[33]

(106) In this region of the country, those are more [eɪ]pricots than [æ]pricots.

This improvement is rather fragile, however. It is significantly diminished in other metalinguistic degree constructions:

(107) a. # ...those are [eɪ]pricots more than [æ]pricots.
       b. # ...those are less [eɪ]pricots than [æ]pricots.
       c. # ...those are as much [eɪ]pricots as [æ]pricots.

It seems, then, that (106) is a bit of an outlier. More data may help clarify the situation.

If an actor has just read a line in a dull, monotonous fashion, one might imagine the director saying (108):

(108) Well, you got the line right, but it's more 'is this a *dagger* I see before me?!' [read in an emotive fashion] than 'is this a dagger I see before me?' [read in a dull, monotonous fashion].

This quotative use seems very natural. But again, the acceptability diminishes dramatically in other constructions:

(109) a. #...it's 'is this a *dagger* I see before me?!' [read in an emotive fashion] more than 'is this a dagger I see before me?' [read in a dull, monotonous fashion].
       b. #...it's less 'is this a dagger I see before me?' [read in a dull, monotonous fashion] than 'is this a *dagger* I see before me?!' [read in an emotive fashion].

_____

[33]All of the examples in this subsection that appear to support a quotative analysis come from an anonymous reviewer.

c. #(There's another equally good way to say that.) It's as much 'is this a *dagger* I see before me?!' [read in an emotive fashion] as 'is this a dagger I see before me?' [read in a dull, monotonous fashion].

One more example, this one based on Horn (1992): suppose a piano student has just played a passage in a Baroque manner. The instructor might correct the student with (110):

(110) It's more [plays passage in a Romantic manner] than [plays same passage in a Baroque manner].

Once again, other metalinguistic degree constructions behave differently:

(111) a. #?It's [plays passage in a Romantic manner] more than [plays same passage in a Baroque manner].

b. #?It's [plays passage in a Baroque manner] less than [plays passage in a Romantic manner].

c. #?(There's another equally good way to play it.) It's [plays passage in a Baroque manner] as much as [plays passage in a Romantic manner].

It seems, then, that the left-peripheral form of *more* is flexible in ways other metalinguistic constructions aren't.

Even this flexibility seems to be quite limited. When the copula is replaced with another verb, the acceptability again deteriorates:

(112) a. #It $\left\{ \begin{array}{l} \text{seems} \\ \text{got} \\ \text{became} \end{array} \right\}$ more 'is this a *dagger* I see before me?!' [read in an emotive fashion] than 'is this a dagger I see before me?' [read in a dull, monotonous fashion].

b. #It $\left\{ \begin{array}{l} \text{seems} \\ \text{got} \\ \text{became} \end{array} \right\}$ more [plays passage in a Romantic manner] than [plays same passage in a Baroque manner].

All of these would make perfect sense pragmatically. Both *got* and *became* might be used to report improvements in the performance (of the actor or student). *Seems* might report an uncertain judgment—in this case, one can actually improve the sentences again by inserting *to be*.

The generalization is apparently that *be more X than Y* is uniquely capable of supporting such uses. One might interpret this to mean that it is an idiom,

and that it alone has a quotative denotation. The analysis that I will consider in the next section would support making such a distinction.

There is another class of examples of a slightly different character. A restaurant critic writing a negative review might report his dissatisfaction with (113):

(113) Unfortunately, their signature dish is more stewed rabbit than civet de lapin.

One can also imagine contexts in which (114) would be natural:[34]

(114) a. In this neighborhood, the cops are more pigs than police.
b. Obama is more a president who is black than a black president.

The first thing to be said about these examples is that they, like the others in the preceding section, deteriorate significantly when *more* is right-peripheral, when another metalinguistic degree word is used, or when the verb is changed.

What makes these slightly different is that in these cases, one can detect something beyond a mere comparison between two utterances. Rather, these all seem to compare *meanings*. In (114a), for example, the reviewer would not have succeeded in communicating anything if *stewed rabbit* and *civet de lapin* didn't mean slightly different things to begin with. Likewise with *pigs* and *police*, and *president who is black* and *black president*. All of these pairs have (more or less) the same extension, but they differ palpably in their expressive content. This is worth distinguishing because expressive meaning, like quotation, has been argued to exist on semantic dimension separate from truth-conditional meaning (Potts 2003). This cuts both ways, however. Expressive meaning is, after all, meaning, and it can be construed more or less precisely. A particularly badly rendered *civet de lapin* might be so bad that it (as the revealing expression goes) is hardly worthy of the name. It may only be worthy of the name *stewed rabbit*. One term fits more precisely than the other, if only in virtue of its expressive meaning. This accords very well with the outlook that Giannakidou & Yoon (2009) advocate, in which the expressive character of MCs is crucial.

6.3   *An Utterance-Based Approach*

Overall, the evidence for adopting an utterance-based approach seems to be surprisingly limited. It consists chiefly (perhaps exclusively) of the *be more X than Y* idiom. This is especially surprising in light of the term 'metalinguistic'.

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[34]These sentences are variations on examples from Horn (1992).

But even this one idiom may reflect something deeper. Even if it is the only item in the lexicon that is both quotative and comparative, and even if this is not a property of MCs in general, it would nonetheless reveal that it is at least in principle possible to have such a meaning. Perhaps one might find further evidence for this outside of English. So it is worth exploring what an utterance-based account would look like.

The framework I will adopt is that of Potts (2007), who develops a quotative theory of metalinguistic negation. Lechner (2007) actually explicitly proposes a theory of MCs in this framework, and some of what is proposed below is in that spirit. Potts' starting point is lexical representations that are pronunciation-meaning pairs, such as (115):[35]

(115) $\langle[\text{mɪstrits}], \textit{mistreats}\rangle$

This sort of representation is what gets assembled in the syntax into larger expressions such as (116):

(116) Dick mistreats colleagues.
$\langle[\text{dɪkmɪstritskɔligz}], \textit{mistreats}(\textit{colleagues})(\textit{Dick})\rangle$

Under normal circumstances, the semantics cares only about the semantic portion of this. But not all circumstances are normal. Certain linguistic expressions, such as verbs of saying, have meanings that involve both the meaning of their complement and its phonology. To reflect this, Potts introduces into the ontology a distinct type which incorporates all of the information in (116): the utterance.[36]

Embedding this kind of multidimensionality into a Hamblin semantics inevitably involves complicating an already fairly complicated picture, but the basic move is straightforward: alternatives will be utterances rather than meanings. The compositional process will be as schematized in (117):[37]

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[35]He also includes a categorial-grammar-style syntactic category label, which I omit here.

[36]He distinguishes utterances from representations such as the ones in (115) and (116)—an utterance has such a representation as its content, but is not identical to it.

[37]This adapts the Potts original in a relatively direct way.

(117)
$$\left\{ \begin{array}{l} \langle[\text{mɪstritskɔligz}], \textit{mistreats}(\textit{colleagues})\rangle, \\ \langle[\text{mɪstritsfrɛndz}], \textit{mistreats}(\textit{friends})\rangle, \\ \langle[\text{ʃutskɔligz}], \textit{shoots}(\textit{colleagues})\rangle, \\ \langle[\text{ʃutsfrɛndz}], \textit{shoots}(\textit{friends})\rangle, \\ \vdots \end{array} \right\}$$

$$\left\{ \begin{array}{l} \langle[\text{mɪstrits}], \textit{mistreats}\rangle, \\ \langle[\text{ʃuts}], \textit{shoots}\rangle, \\ \vdots \end{array} \right\} \quad \left\{ \begin{array}{l} \langle[\text{kɔligz}], \textit{colleagues}\rangle, \\ \langle[\text{frɛndz}], \textit{friends}\rangle, \\ \vdots \end{array} \right\}$$

What this reflects is that the denotation of a daughter of a branching node, a set of utterance alternatives, is combined with that of its sister to yield, as the denotation of the mother, a set of utterance alternatives. On the phonological dimension, these alternatives are computed by simply concatenating the phonology of the daughters' alternative sets. On the semantic dimension, they are computed in the usual way. This can be expressed more explicitly by modifying the Hamblin Functional Application rule:

(118) HAMBLIN UTTERANCE COMPOSITION:

If α is a branching node with daughters β and γ (in that order),

$$[\![\,\alpha\,]\!]^{d,C} = \left\{ \left\langle \begin{array}{l} [\text{PHON}(u)\text{PHON}(u')], \\ \text{SEM}(u) \cdot \text{SEM}(u') \end{array} \right\rangle : u \in [\![\,\beta\,]\!]^{d,C} \wedge u' \in [\![\,\gamma\,]\!]^{d,C} \right\}$$

where $\text{SEM}(u) \cdot \text{SEM}(u')$ is either $\text{SEM}(u)(\text{SEM}(u'))$ or $\text{SEM}(u')(\text{SEM}(u))$, whichever is defined

This expresses the process indicated immediately above. It makes use of a pair of functions, SEM and PHON, which apply to an utterance and return its semantic and phonological content (respectively). The name of the rule has been changed to reflect that it is now no longer simply a rule of semantic composition—it is now actually building phonological representations (inside the semantics) as well.

In addition, it will be necessary to modify how the precision parameter works. First, the similarity relation will now be defined as in (119) (cf. (39)):

(119) $\alpha \approx_{d,C} \beta$ iff, given the ordering imposed by the context C, α resembles β to (at least) the degree d (along the relevant dimension) and $\text{SEM}(\alpha)$ and $\text{SEM}(\beta)$ are of the same type

This definition is now agnostic about the nature of the resemblance required. This is not, of course, necessary. One could have kept precision as the crucial

notion here. Because of this change, the effect of the PREC operator will now be different, in that it will operate on whatever dimension of similarity is used in (119). The denotation of a particular word will be a set of utterance alternatives:

(120) $[\![\,dumb\,]\!]^{d,C} = \{u : u \approx_{d,C} \langle [\mathrm{d}\Lambda\mathrm{m}], dumb\rangle\}$

Existential closure will need to be adjusted so that it can retrieve the semantic content from an utterance alternative:

(121) $[\![\,\exists\,\alpha\,]\!]^{d} = \lambda x \lambda w\,.\,\exists u[u \in [\![\,\alpha\,]\!]^{d} \wedge \mathrm{SEM}(u)(x)(w)]$

As before, this 'pops out' of the system of alternatives and places us on a non-alternative dimension. Now it also pops out of the system of utterances, throwing out the phonological material. This can't ultimately be right, but is a useful simplification.

A denotation can now be as in (123), using the first compositional denotation for $more_{\mathrm{ML}}$ in (122):

(122) $[\![\,more_{\mathrm{ML}}\,]\!]^{d} = \lambda g_{\langle d,\langle e,st\rangle\rangle}\lambda f_{\langle d,\langle e,st\rangle\rangle}\left\{\lambda x \lambda w\,.\,\exists d'\left[\begin{array}{c} g(d')(x)(w)\,\wedge \\ \neg f(d')(x)(w) \end{array}\right]\right\}$

(123) a. $[\![\,\exists\,crazy\,]\!]^{d} = \lambda x \lambda w\,.\,\exists u[u \in [\![\,crazy\,]\!]^{d} \wedge \mathrm{SEM}(u)(x)(w)]$

   b. $[\![\,\mathrm{PREC}\,\exists\,crazy\,]\!]^{d} = \lambda d'\,.\,[\![\,\exists\,crazy\,]\!]^{d'}$

   $= \lambda d'\lambda x \lambda w\,.\,\exists u[u \in [\![\,crazy\,]\!]^{d'} \wedge \mathrm{SEM}(u)(x)(w)]$

   c. $[\![\,\mathrm{PREC}\,\exists\,dumb\,]\!]^{d} = \lambda d'\,.\,[\![\,\exists\,dumb\,]\!]^{d'}$

   $= \lambda d'\lambda x \lambda w\,.\,\exists u[u \in [\![\,dumb\,]\!]^{d'} \wedge \mathrm{SEM}(u)(x)(w)]$

(124) $[\![\,more_{\mathrm{ML}}\,]\!]^{d}([\![\,\mathrm{PREC}\,\exists\,dumb\,]\!]^{d})([\![\,\mathrm{PREC}\,\exists\,crazy\,]\!]^{d})$

$= \left\{\lambda x \lambda w\,.\,\exists d'\left[\begin{array}{c} \exists u[u \in [\![\,dumb\,]\!]^{d'} \wedge \mathrm{SEM}(u)(x)(w)]\,\wedge \\ \neg\exists u'[u' \in [\![\,crazy\,]\!]^{d'} \wedge \mathrm{SEM}(u')(x)(w)] \end{array}\right]\right\}$

The result is that *more dumb than crazy* will denote a set of properties that hold of an individual x iff there is a degree of similarity with respect to which:

- there is an utterance among the alternatives to *dumb* whose meaning holds of x (in w)

- there is no utterance among the alternatives to *crazy* whose meaning holds of x (in w)

What all this shows is that the basic theoretical machinery proposed in this paper—Hamblin alternatives as a means of modeling (something like) pragmatic halos—can be adapted to reflect any similarity relation between utterances. The compositional assumptions made above, including that MCs operate outside of the system of alternatives and that existential closure is a means of popping out of it, remain essentially unchanged. In this respect, it demonstrates that these ideas are logically independent of the hypothesis that MCs compare precision, and that they compare meanings rather than utterances.

6.4 *Evaluation*

Although it is possible to implement a version of the theory proposed here that works in terms of utterances, it is not at all clear that it is advisable. Adding utterances to the model is a big move, and an ontologically bold one. It may be necessary to account for quotation and metalinguistic negation, so perhaps complicating the ontology in this way is unavoidable. Analytical necessity should trump metaphysical caution. Even so, it seems methodologically prudent to avoid relying on such tools unless it is absolutely clear that it really is necessary.

There is, however, an interesting middle ground here that bears recognizing—an intermediate theory in which it is utterances that are being compared, but the dimension of comparison is still their imprecision. This would of course entail admitting utterances into the ontology. Yet it would capture in a satisfying way the feeling that imprecision *itself* might be in some sense a metalinguistic or quotative phenomenon, a matter of more or less precise ways of describing things linguistically rather than of more or less precise ways of predicating abstract meanings of them.

7   Final Remarks

To summarize, the hypothesis I pursue here is that MCs compare degrees of imprecision. They are in that sense slack-regulators. To facilitate comparison of imprecision, I recast the Lasersohnian pragmatic-halos framework in terms of Hamblin alternatives. This approach identifies more narrowly the gradable relation that metalinguistic comparison targets, and it makes it possible to regard the difference between metalinguistic and ordinary comparatives as a reflection of the difference between imprecision and vagueness. The proposal is couched in terms of grammatical machinery that is well-motivated on independent grounds. In this respect, it places metalinguistic comparison deep into the sinews of the grammar, in line with recent research suggesting

that it is very much a grammatical phenomenon and not primarily a matter of extra-grammatical pragmatic reasoning.

I have also proposed an account of the compositional semantics of MCs. To arrive there, it was necessary to articulate a model of a compositional system of Hamblin alternatives that has the properties necessary to achieve this. This entailed extending approach of Kratzer & Shimoyama (2002), which was the starting point, in several ways. The more significant of these was the use of existential closure as a generalized means of moving from denotations that are sets of alternatives to ordinary ones. Finally, building on Potts (2007), I suggested a compositional variant of this system in which the alternatives are not meanings but rather utterances. Although this variant is compatible with the precision-based approach to MCs advocated here, it can accommodate any relation that orders utterances. In this respect, it could equally well fit a theory of MCs framed in terms of overall pragmatic appropriateness or, as in Giannakidou & Yoon (to appear), preference. Indeed, even the non-utterance-based version of the compositional system can accommodate other relations that order meanings.

Perhaps the most surprising result here, however, has been the conclusion that the evidence for the utterance-based approach is actually relatively limited, at least in English. It may well be that further evidence will eventually emerge that the utterance-based variant is required. Until then, though, the more conservative route is in fact the more interesting one because it is the most restrictive. If we adopt an utterance-based theory too readily, we may fail to recognize precisely what the evidence for it is.

The same methodological point can be made about imprecision modulation itself. The hypothesis that MCs regulate imprecision is fairly restrictive—it amounts to the claim that they can do less than we thought. Again, evidence may ultimately emerge that this is too restrictive, but the more interesting course is to begin with the most restrictive hypothesis. Relinquishing it, moreover, would require providing another explanation for the contexts in section 3.1 in which MCs are not possible.

In first raising the possibility of using alternatives to model imprecision, I alluded to connections to other areas in which alternatives are used. The connection to focus is explored in a tentative way in section 4.4, but one might imagine further connections. Do MCs have any noteworthy properties that relate them to questions, or to scalar implicatures? To my knowledge, the answer is no. Even so, it is worth considering the question. This leads to a more general question as well about what connections there might be among the phenomena that have proved amenable to an alternatives-based account.

Reformulating Lasersohnian halos as alternative sets and construing the result as a theory of imprecision also raises more general questions. This

paper puts the idea to use for only one kind of slack-regulator. But there are others. *Precisely* and *approximately* are among them (Sauerland & Stateva 2007). Perhaps *almost* and its cousins (*nearly*, *barely*, etc.) belong in this class too. Lasersohn even treats *all* as a slack-regulator. It is at least possible to reformulate these in terms of the understanding of pragmatic slack proposed here. Whether there is any special advantage in doing so remains to be seen.

Another possibility that I leave unexplored is the extent to which a connection might be made between imprecision and prototypicality. One way to characterize what it means to say that *I am more machine now than man* is that it claims the speaker is a more prototypical exemplar of a machine than of a man. Thinking in terms of prototypes can be dangerous because their compositional properties are often unclear (Kamp & Partee 1995), but if they are to play a role in the grammar, MCs might help make clear what it is. And if it turns out that imprecision on its own is *too* restrictive a notion of (in)appropriateness, something along these lines may provide a more satisfactory alternative.

One final broader consequence of the proposal warrants highlighting. In making imprecision gradable, the view I have suggested here gives rise to two varieties of gradability in the grammar: one involving the machinery of vagueness, the other of imprecision. It is not merely the case that vagueness and imprecision are simply conceptual cousins, then—they are grammatical cousins as well. Either can give rise to comparatives, and perhaps to other forms of degree modification. It is then possible to ask, for any construction involving gradability, which kind of gradability it is. For example, one might wonder whether nominal degree constructions such as *more of an idiot* and *a bigger idiot* actually operate on the level of imprecision modulation.[38] In a similar vein, quasi-comparative structures such as *Compared to Herman, Clarence is tall* may prove amenable to such an analysis. If so, the consequences might be far-reaching. Beck et al. (2004) argue that some languages (Japanese among them) use such structures as their principal means of expressing comparison. This presents the intriguing possibility that comparing relative precision may be in some sense fundamental. Perhaps it is not merely certain constructions that operate on this level—it may conceivably be entire languages.

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[38]With respect to *a bigger idiot*, this would be contrary to Morzycki (2009).

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