

# Standards of Comparison

## 1 Variation in the expression of comparison

How do languages vary in the expression of comparison, what underlies this variation, and what does it tell us about universals at the syntax-semantics interface?

The goal of today’s talk is to argue that one point of variation involves the syntactic and semantic properties of the STANDARD OF COMPARISON:

(1)	TARGET OF COMPARISON	GRADABLE PREDICATE	COMPARATIVE MORPHEME	STANDARD MARKER	STANDARD OF COMPARISON
	Kim (is)	old	-er	than	Lee.

In particular, I will argue for two points of variation:

- **Individual vs. degree standards** Does the standard correspond to an individual in the semantics and a NP/DP in the syntax or a degree in the semantics and a (*wh*-)clause in the syntax?
- **Compositional vs. contextual standards** Is the standard selected by the comparative predicate or is it the contextual standard involved in the interpretation of the positive form?

As a starting point, I will adopt the ‘standard view’ of the semantics of a gradable predicate *G* (popular since Cresswell 1977): that it denotes a relation between a degree and an individual of the form in (2), where  $\mathbf{m}_G(x)$  is a measure function that returns the degree to which *x* is *G*.

$$(2) \quad \llbracket G \rrbracket = \lambda d \lambda x. \mathbf{m}_G(x) \succeq d$$

There are other options that we may want to consider later in the talk, but this will get us going.

## 2 Individual vs. degree standards

### 2.1 Phrasal and clausal comparatives

The hypothesis that some languages have both nominal and clausal standards goes back at least to Hankamer 1973, who argued that English *than*-constituents are ambiguous in this way (see also Hoeksema 1984; Heim 1985; Kennedy 1999):

- (3) a. Kim is older than [DP Lee]  
 b. Kim is older than [CP *wh* Lee is ~~older~~]

Evidence for the ‘phrasal’ structure in (3a) comes from facts like (4)-(5):

- (4) a. Noone<sub>1</sub> is older [PP than [DP himself<sub>1</sub>]]  
 b. \*Noone<sub>1</sub> is older [PP than [CP himself<sub>1</sub> is]]
- (5) a. Lee doesn’t know who<sub>1</sub> Kim is older [PP than *t*<sub>1</sub>]  
 b. \*Lee doesn’t know who<sub>1</sub> Kim is older [PP than [CP *t*<sub>1</sub> is]]

This distinction is illustrated even more dramatically in languages that have both ‘fixed’ and ‘derived’ comparatives (Stassen 1985), like Russian, or multiple standard markers, like Greek (Merchant 2006):

- (6) a. Dmitri starše Ivana.  
 Dmitri-NOM older Ivan-GEN  
 b. Dmitri starše čem Ivan.  
 Dmitri-NOM older than Ivan-NOM  
*Dmitri is older than Ivan.*
- (7) a. O Dimitris ine pio megalos  
 the Dimitris-NOM is more old  
 apo ton Gianni.  
 than<sub>P</sub> the Giannis-ACC  
 b. O Dimitris ine pio megalos  
 the Dimitris-NOM is more old  
 apoti o Gianni.  
 than<sub>C</sub> the Giannis-NOM  
*Demitrios is older than Giannis.*

The semantic analysis of clausal comparatives is fairly straightforward, consisting of some version of the assumptions in (8) (see von Stechow 1984; Heim 1985, and variants thereof).<sup>1</sup>

(8) *Clausal comparatives*

- i. The standard constituent denotes a definite description of a maximal degree.
- ii. The comparative morpheme (MORE) has a denotation along the lines of (9).
- iii. The comparative morpheme and standard are a constituent at LF/underlyingly (see Brennan 1973 and more recently Bhatt and Pancheva 2004; again, there are variants).

$$(9) \quad \llbracket \text{MORE} \rrbracket = \lambda d \lambda g_{\langle d, et \rangle} \lambda x. \max(g)(x) \succ d$$

Given these assumptions, the comparative predicate in (3b) has the interpretation in (10).

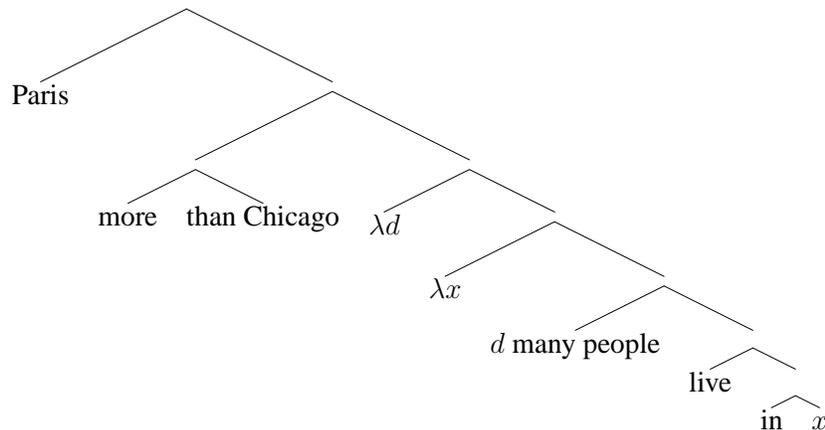
$$(10) \quad \llbracket \text{MORE} \rrbracket(\llbracket \text{than } [\text{CP } \textit{wh Lee is } \textit{old}] \rrbracket)(\llbracket \text{old} \rrbracket) = \lambda x. \max(\textit{old})(x) \succ \max(\textit{old})(\textit{Lee})$$

Phrasal comparatives are a bit trickier: if phrasal standards are syntactically nominal and denote individuals, they cannot combine with MORE as defined in (9). We therefore need to posit a second ‘phrasal’ MORE<sub>P</sub> as in (11), which takes an individual-denoting standard and derives degree by supplying it as an argument to a degree relation (Hoeksema 1984; Heim 1985; Kennedy 1999).

$$(11) \quad \llbracket \text{MORE}_P \rrbracket = \lambda y \lambda g_{\langle d, et \rangle} \lambda x. \max(g)(x) \succ \max(g)(y)$$

In the case of structures like (3a), surface form reflects composition. In order to derive the meaning of (12a), however — assuming it has a phrasal analysis — we need to assume the more complicated LF in (12b), which involves ‘parasitic scope’ (Heim 1985; Barker in press; Bhatt and Takahashi 2007).

- (12) a. More people live in Paris than Chicago.  
 b.



<sup>1</sup>To keep the notation as perspicuous as possible, I will use *old* etc. to abbreviate the corresponding  $\langle d, et \rangle$  expression (in (10),  $\lambda d \lambda x. \textit{old}(x) \succeq d$ ), and  $\max(g)(x)$  to abbreviate  $\max\{d \mid g(d)(x) = 1\}$ .

The interpretation of the sister of *Paris* in (12b) is (13), which is exactly what we want.

(13)  $\lambda x.max(\lambda d\lambda y.d\text{-many people live in }y)(x) \succ max(\lambda d\lambda y.d\text{-many people live in }y)(Chicago)$

There is some question about whether a phrasal analysis is necessary in English given the possibility of ellipsis in the comparative clause, or whether it is even an option (see Lechner 2001, and Bhatt and Takahashi 2007 for a reply); for the moment I will assume that it is, and that it is analyzed more or less as shown here.

What is more interesting is the fact that there are languages in which it appears to be the *only* option. Bhatt and Takahashi (2007) make a compelling argument that Hindi-Urdu has only phrasal comparatives, Xiang (2003) makes this argument for Mandarin. Languages that have only fixed-case comparatives (e.g., Uzbek) presumably fall in this group; here I want to argue that Japanese, despite initial appearances, should also be analyzed in this way.

## 2.2 Japanese

Japanese comparatives differ from their English counterparts in a number of ways.

- No overt comparative morphology (true of 32 of 108 languages in Ultan’s (1972) survey).
- The standard marker *yor* is derived from a postposition meaning ‘from’ (one of Stassen’s (1985) ‘separative comparative’ languages).

But like English, they appear to have clausal standards:

(14) Taroo-wa [Hanako-ga katta yori] takusan(-no) kasa-o katta.  
 Taroo-TOP [Hanako-NOM bought YORI] many(-GEN) umbrella-ACC bought  
*Taroo bought more umbrellas than Hanako bought.*

(15) Taroo-wa [Hanako-ga kaita yori] nagai ronbun-o kaita.  
 Taroo-TOP [Hanako-NOM wrote YORI] long paper-ACC wrote  
*Taroo wrote a longer paper than Hanako wrote.*

However, Japanese ‘clausal’ comparatives are distinct in a couple of important ways, documented in Beck, Oda, and Sugisaki 2004. First, as pointed out by Ishii 1991, the acceptability of comparatives that are structurally identical differ according to (15)-(14) varies depending both on the kind of gradable predicate and on the verb:

(16) \*?Taroo-wa [Hanako-ga katta yori] nagai kasa-o katta.  
 Taroo-TOP [Hanako-NOM bought YORI] long umbrella-ACC bought  
*Taroo bought a longer umbrella than Hanako bought.*

(17) \*?Taro-wa [Hanako-ga katta yori] ookii hon-o katta  
 Taro-TOP [Hanako-NOM bought YORI] big book-ACC bought  
*Taro bought a bigger book than Hanako bought.*

This variability is unexpected if clausal standards in Japanese are degree abstraction structures:

(18) a. than [<sub>CP</sub> *wh* Hanako bought a ~~long umbrella~~]  
 b.  $max\{d \mid \text{Hanako bought an umbrella at least as long as }d\}$

Second, Japanese does not allow adjectives ‘subdeletion’ constructions such as the English gloss of (19), which transparently reflects the structure of all clausal comparatives.

- (19) \*Kono tana-wa [ano doa-ga hiroi yori] takai  
 this shelf-TOP [that door-NOM wide YORI] tall  
*This shelf is taller than that door is wide.*

Third, Japanese comparative clauses appear to be insensitive to negative island effects, which is again unexpected if they involve maximization over degrees.

- (20) John-wa [dare-mo kawa-naka-tta no] yori takai hon-o katta  
 John-TOP anyone buy-NEG-Past NO YORI expensive book-ACC bought.  
*John bought a book that is more expensive than the book that nobody bought.*

- (21) a. \*Kim bought a more expensive book than [<sub>CP</sub> nobody did ~~buy a <sub>T</sub> expensive book~~]  
 b.  $\max\{d \mid \text{nobody bought a book at least as expensive as } d\}$

**My claim:** These differences are due to the fact that Japanese has only individual standards.

If this is correct, then the clausal standards in the examples above must be relative clauses (signaled by *no* in (20)), which predicts the absence of negative island effects and the impossibility of subdeletion, since these phenomena necessarily involve degree abstraction structures.

Variability effects arise from the interaction of the semantics of ‘phrasal’  $\text{MORE}_I$  with the specific type of relative clause seen in examples like (16).

Recall that what’s special about  $\text{MORE}_I$  is that it plugs an individual standard in as argument to a degree relation; this individual ultimately ends up as the argument to the measure function that the degree relation encodes, as shown in (22).<sup>2</sup>

$$(22) \quad \llbracket \text{MORE}_I \rrbracket(S)(G) = \lambda x. \max\{d' \mid \mathbf{m}_G(x) \succeq d'\} \succ \max\{d' \mid \mathbf{m}_G(S) \succeq d'\}$$

This means that the individual standard must be the sort of thing that can be measured by the gradable predicate on which the comparative is based. What sort of thing do the standards in (23a-c) denote?

- (23) a. Taroo-wa [Hanako-ga katta] yori takusan(-no) hon-o katta.  
 Taroo-TOP Hanako-NOM bought YORI many(-GEN) book-ACC bought  
*Taroo bought more books than Hanako bought.*  
 b. \*?Taro-wa [Hanako-ga katta] yori ookii hon-o katta  
 Taro-TOP Hanako-NOM bought YORI big book-ACC bought  
*Taro bought a bigger book than Hanako bought.*  
 c. Taroo-wa [Hanako-ga kaita] yori nagai hon-o kaita.  
 Taroo-TOP Hanako-NOM wrote YORI long book-ACC wrote  
*Taroo wrote a longer book than Hanako wrote.*

Following Beck et al. 2004, I assume that the bracketed standard constituents are (headless) relative clauses that denote maximal pluralities; in (23a-b) and (23c), the ones in (24a-b) respectively.

- (24) a.  $\max(\lambda x. \text{Hanako bought } x)$   
 b.  $\max(\lambda x. \text{Hanako wrote } x)$

I also assume (for the moment) that Japanese includes a null version of  $\text{MORE}_I$ , so that the composition of the comparative predicates in (24a-c) are as in (25a-c).

<sup>2</sup>Recall that  $G$  is an abbreviation for  $[\lambda d \lambda z. \mathbf{m}_G(z) \succeq d]$ , so (ia) abbreviates (ib), and  $\lambda$ -simplification gets us to (22).

- (i) a.  $\lambda x. \max(G)(x) \succ \max(G)(S)$   
 b.  $\lambda x. \max\{d' \mid [\lambda d \lambda z. \mathbf{m}_G(z) \succeq d](d')(x) = 1\} \succ \max\{d' \mid [\lambda d \lambda z. \mathbf{m}_G(z) \succeq d](d')(S) = 1\}$

- (25) a.  $\llbracket \text{MORE}_I \rrbracket (\text{max}(\lambda x. \text{Hanako bought } x)) (\llbracket \text{takusan} \rrbracket)$   
 b.  $\llbracket \text{MORE}_I \rrbracket (\text{max}(\lambda x. \text{Hanako bought } x)) (\llbracket \text{ookii} \rrbracket)$   
 c.  $\llbracket \text{MORE}_I \rrbracket (\text{max}(\lambda x. \text{Hanako wrote } x)) (\llbracket \text{nagai} \rrbracket)$

The denotations of *takusan*, *ookii* and *nagai* are shown in (26):

- (26) a.  $\llbracket \text{takusan} \rrbracket = \lambda n \lambda x. \mathbf{many}(x) \succeq n$   
 b.  $\llbracket \text{ookii} \rrbracket = \lambda d \lambda x. \mathbf{big}(x) \succeq d$   
 c.  $\llbracket \text{nagai} \rrbracket = \lambda d \lambda x. \mathbf{long}(x) \succeq d$

Putting everything together, we get (27a-c) as the denotations of the comparatives in (23a)-(23c).

- (27) a.  $\lambda x. \text{max}\{d' \mid \mathbf{many}(x) \succeq d'\} \succ \text{max}\{d' \mid \mathbf{many}(\text{max}(\lambda x. \text{Hanako bought } x)) \succeq d'\}$   
 b.  $\lambda x. \text{max}\{d' \mid \mathbf{big}(x) \succeq d'\} \succ \text{max}\{d' \mid \mathbf{big}(\text{max}(\lambda x. \text{Hanako bought } x)) \succeq d'\}$   
 c.  $\lambda x. \text{max}\{d' \mid \mathbf{long}(x) \succeq d'\} \succ \text{max}\{d' \mid \mathbf{long}(\text{max}(\lambda x. \text{Hanako wrote } x)) \succeq d'\}$

We can now explain the pattern of acceptability as follows:

- (27a) is OK because **many** is a measure of the size (cardinality) of a plurality.
- (27b) is BAD because **big** is a measure of the size of an atomic object (cf. the fact that *big books* has only a distributive interpretation).
- (27c) is OK even though **long** is a measure of the length of an atomic object, because *write* is an incremental theme verb, so the maximal plurality of incremental objects Hanako wrote can correspond to a single atomic object.

The headless relatives in (23a)-(23c) are not the only syntactic options for the standard, however: as we saw in (20), it is possible to affix NO, and it is also possible to have external head, both both of which trigger *singular definite interpretations*.

This should result in acceptability with adjectives like *ookii* ‘big’, but should be impossible with *takusan* ‘many’. Indeed this is the case; the full pattern of judgments is shown in the following examples:

- (28) Taroo-wa [[Hanako-ga kaita]  $\emptyset$ /no/hon] yori nagai hon-o kaita.  
 Taroo-TOP [[Hanako-NOM wrote]  $\emptyset$ /NO/book] YORI long book-ACC wrote  
*Taroo wrote a longer book than Hanako wrote.*
- (29) Taroo-wa [[Hanako-ga katta]  $*\emptyset$ /no/hon] yori ookii hon-o katta  
 Taroo-TOP [[Hanako-NOM bought]  $*\emptyset$ /NO/book] YORI big book-ACC bought  
*Taroo bought a bigger book than Hanako bought.*
- (30) Taroo-wa [[Hanako-ga katta]  $\emptyset$ / $*\text{no}$ / $*\text{hon}$ ] yori takusan(-no) hon-o katta  
 Taroo-TOP [[Hanako-NOM bought]  $\emptyset$ / $*\text{NO}$ / $*\text{book}$ ] YORI many(-GEN) book-ACC bought  
*Taroo bought more books than Hanako bought.*

The anomaly of the singular definite variants of (30) shows up in English, as well:

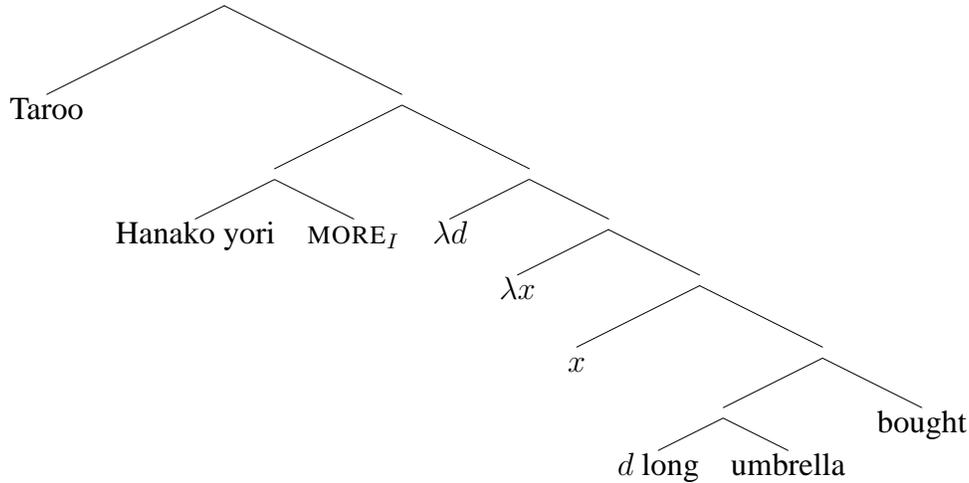
- (31)  $*\text{?Taroo}$  bought more books than the book/one that Hanako bought.

Further evidence in favor of this analysis comes from the acceptability of (32) (noticed by Ishii 1991), which has the meaning that we are trying to get in the anomalous (16).

- (32) Taroo-wa Hanako yori nagai kasa-o katta.  
 Taroo-TOP Hanako YORI long umbrella-ACC bought  
*Taroo bought a longer umbrella than Hanako.*

Given the discussion of (12a) above, we expect this example to permit a LF along the lines of (33). ((16) would allow this too, but the resulting meaning would be bizarre.)

(33)



The interpretation of this structure is shown in (34a-b), which is the meaning we wanted for (16).

- (34) a.  $\llbracket \text{MORE}_I \rrbracket(\text{hanako})(\lambda d \lambda x . x \text{ bought an umbrella at least as long as } d)(\text{taroo})$   
 b.  $\text{max}(\lambda d \lambda x . x \text{ bought an umbrella at least as long as } d)(\text{taroo}) \succ \text{max}(\lambda d \lambda x . x \text{ bought an umbrella at least as long as } d)(\text{hanako})$

Crucially, scoping *yori*+ $\text{MORE}_I$  gives us a new degree relation: one that derives truth conditions for the individual standard structure that are equivalent to what we can build using a clausal, degree-denoting standard in English.

### 2.3 Rethinking the standard (analysis)

The individual/degree standard distinction appears to be a real point of cross-linguistic variation. But what underlies/determines it? One option is to simply assume that there are multiple denotations for MORE (Hoeksema 1984; Heim 1985; Kennedy 1999), and that languages can choose between them (Bhatt and Takahashi 2007), which is basically the way I've been laying things out so far:

- (35) a.  $\llbracket \text{MORE}_D \rrbracket = \lambda d \lambda g_{\langle d, et \rangle} \lambda x . \text{max}(g)(x) \succ d$   
 b.  $\llbracket \text{MORE}_I \rrbracket = \lambda y \lambda g_{\langle d, et \rangle} \lambda x . \text{max}(g)(x) \succ \text{max}(g)(y)$

In fact, we don't necessarily have to assume two MOREs, since  $\text{MORE}_I$  can be defined in terms of  $\text{MORE}_D$  (though not vice-versa, a point I will return to shortly):

(36)  $\llbracket \text{MORE}_I \rrbracket = \lambda y \lambda g_{\langle d, et \rangle} \lambda x . \llbracket \text{MORE}_D \rrbracket(\text{max}(g)(y))(g)(x)$

I would like to suggest an alternative however, which builds on the following observations:

- Languages do not seem to morphologically distinguish different MOREs, and many languages do not have an (overt) morphological realization of MORE at all.
- On the other hand, languages often do make use of different morphemes to mark the standard, and the choice appears to correlate with the individual vs. degree distinction when a language has both types of comparison (e.g. Russian GEN/derived case; Greek *apo/apoti*; Italian *di/che*).

My proposal consists of two main components. First, assume (contrary to intuition) that comparative morphology has no semantic content. Instead, it just turns a gradable predicate into something that can select for a standard constituent (lexical category 'St'):

(37)	a.	$\begin{bmatrix} \textit{old} \\ \text{CAT} & \text{A} \\ \text{SEL} & \emptyset \\ \text{SEM} & \lambda d \lambda x. \mathbf{old}(x) \succeq d \end{bmatrix}$	b.	$\begin{bmatrix} [\text{MORE } \textit{old}] \\ \text{CAT} & \text{A} \\ \text{SEL} & \text{St} \\ \text{SEM} & \lambda d \lambda x. \mathbf{old}(x) \succeq d \end{bmatrix}$
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The assumption that the comparative morphology does no semantic work may help us understand why so many languages choose not to give it a pronunciation (Ulta 1972; Bobaljik 2007).

Second, assume that the standard morphology introduces the semantics of comparison. This then gives us the following analytical options:

1. A language may have a single standard morpheme that selects for a degree standard, with a meaning like  $\text{MORE}_D$ . Since a meaning that accepts an individual standard can be derived from this (see (36)), such a language should in principle have both degree and individual comparison.
2. A language may have two standard morphemes that differ in whether they introduce individual or degree standards. Such a language should have both individual and degree comparison, but they will be morphologically (and syntactically) distinguished.
3. A language may have a single standard morpheme that selects for an individual standard, with a meaning like  $\text{MORE}_I$ . Since a meaning that accepts a degree standard cannot be derived from this, such a language should have only individual comparison.

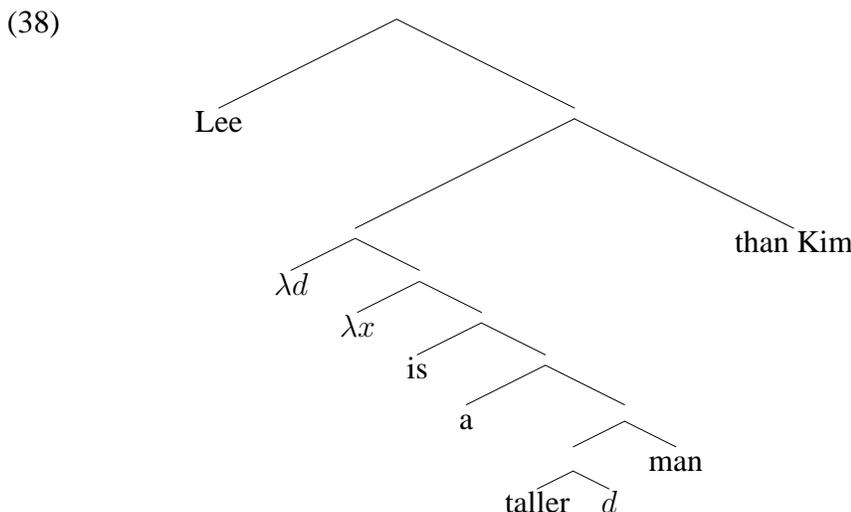
In fact, this may very well be what we see. Table 1 lays out the expected typology:

Table 1: A standard typology

	$\llbracket \textit{standard-morpheme} \rrbracket$	English	Greek	Russian	Japanese
IND:	$\lambda y \lambda g \lambda x. \textit{max}(g)(x) \succ \textit{max}(g)(y)$	$\lambda y \lambda g \lambda x. \llbracket \textit{than} \rrbracket (\textit{max}(g)(y))(g)(x)$	<i>apo</i>	GEN	<i>yori</i>
		↑			↓
DEG:	$\lambda d \lambda g \lambda x. \textit{max}(g)(x) \succ d$	<i>than</i>	<i>apoti</i>	<i>čem</i>	$\emptyset$

It is probably not accidental that individual comparison is encoded by adpositions and case morphology, while degree comparison often involves *wh*- and other quantificational elements. I should also add that this is almost certainly not the full picture: we need to deal with *exceed*-comparisons and conjoined comparisons too (more on the latter below). But it looks like an idea worth exploring.

This approach has a number of other appealing advantages for a language like English. First, it arguably makes the syntax-semantics interface a lot more transparent: no need to force *more* and *than* into a single constituent:



The interpretation of (38) is shown in (39a-b), which correctly captures the fact that this sentence presupposes that Kim is a man.

- (39) a.  $[[\text{than}_P](kim)(\lambda d\lambda x.x \text{ is a man at least as tall as } d)(lee)$   
 b.  $max(\lambda d\lambda x.x \text{ is a man at least as tall as } d)(lee) \succ max(\lambda d\lambda x.x \text{ is a man at least as tall as } d)(lee)$

Second it should straightforwardly capture correlations between the position of the *than*-clause and the scope of comparison, documented by Gawron (1995) and Bhatt and Pancheva (2004).

Note also that we won't run into identity problems in ACD configurations like (40a), given the assumption that MORE is meaningless.

- (40) a. Lee wants to be richer than Kim does.  
 b. Lee [<sub>VP</sub> wants to be richer *t*] [than [*wh* Kim does [<sub>VP</sub> ~~wants to be *t* rich~~]]]  
 c.  $\lambda d\lambda x.x \text{ wants to be at least as rich as } d$

If the standard constituent is raised above *want* as in (40b), the elided and antecedent VPs will both denote the same relation, namely the one in (40c).

Finally, we now have an answer to Hankamer's (1973) question: 'Why are there two *than*'s in English? It's because there are two types of standards and two correspondingly different kinds of comparisons, the meanings of which are encoded in the standard morphology.

The only real ugly feature of the analysis, as far as I can see, is the hypothesis that MORE is meaningless. However, there are a couple of reasons why I'm not too worried about this:

- Cross-linguistically, overt comparative morphology (distinct from clear standard-marking morphology) is often absent, maybe more often than not (see Bobaljik 2007, Appendix 1).
- The combination of MORE with a gradable predicate (which might be *much* or MANY, resulting in the pronunciation /more/) derives something that selects a standard term — and with it the semantics of comparison — so we in effect derive a 'meaning' for MORE.
- Maybe we can put it to work after all. One possibility is that gradable adjectives denote measure functions (type  $\langle e, d \rangle$ ; see Bartsch and Vennemann 1972, 1973; Kennedy 1999) and MORE turns them into degree relations, as well as selecting for a standard.

Or maybe we can do something even more interesting. This requires thinking about another sort of standard.

### 3 Compositional vs. contextual standards

#### 3.1 Version 1

My analysis of Japanese comparatives differs from the one given by Beck et al. (2004), who claim that Japanese and English differ along the following two 'parameters':

- (41) a. *Compositional vs. contextual comparison* (version 1)  
 Is the standard degree an argument of the comparative or recovered from context?  
 b. *The Degree Abstraction Parameter*  
 A language {does, does not} have degree abstraction in the syntax.

In a contextual comparison language, the function of the 'syntactic' standard (the *yor*i-phrase in Japanese) is to make something salient which can then be used to compute the 'semantic' standard — the degree involved in the comparison relation.

(42) Nihongo-wa eigo yori muzukashi  
 Japanese-TOP English from difficult  
*Japanese is more difficult than English.*

- (43) a. Compared to English, Japanese is more difficult.  
 b. Consider English: Japanese is more difficult.

This analysis is implemented basically by assuming two versions of MORE:

- (44) a.  $[[\text{MORE}_E]]^a = \lambda d \lambda g_{(d,et)} \lambda x.g(x) \succ d$   
 b.  $[[\text{MORE}_J]]^a = \lambda g_{(d,et)} \lambda x.g(x) \succ a(\mathbf{s})$

According to Beck et al. (2004), variability effects arise when the syntactic standard does not provide satisfactory information for computing the semantic standard:

(45) \*?Taroo-wa [Hanako-ga katta yori] nagai kasa-o katta.  
 Taroo-TOP [Hanako-NOM bought YORI long umbrella-ACC bought  
*Taroo bought a longer umbrella than Hanako bought.*

- (46) a. Consider the set of umbrellas that Hanako bought: Taroo bought more.  
 b. ??Consider the set of umbrellas that Hanako bought: Taroo bought a longer one.

But it's not clear that this is enough: why couldn't (45) mean (47)?

(47) Consider how long an umbrella Kim bought: Lee bought a longer one.

Also, it doesn't say anything about the impossibility of subdeletion or the absence of negative island effects:

(48) \*Kono tana-wa [ano doa-ga hiroi yori] takai  
 this shelf-TOP [that door-NOM wide YORI] tall  
*This shelf is taller than that door is wide.*

(49) John-wa [dare-mo kawa-naka-tta no] yori takai hon-o katta  
 John-TOP anyone buy-NEG-Past NO YORI expensive book-ACC bought.  
*John bought a book that is more expensive than the book that nobody bought.*

- (50) a. Consider how wide the door is: the shelf is taller.  
 b. \*?Consider how expensive a book Kim didn't buy: Lee bought a more expensive one.

This is why we also need the 'Degree Abstraction Parameter': -DAP languages don't have syntactic standards that denote degrees, so the kinds of paraphrases I've produced here are impossible.

However, once we have the DAP, it's not clear that the contextual/compositional distinction (as conceived by Beck et al.) is doing any work for us. The two parameters together lead us to expect four language types, but in fact we get only two!

(51) Table 2: *The Beck et al. Typology*

	COMPOSITIONAL	CONTEXTUAL
+ DAP	English	<i>English!!</i>
- DAP	<i>Japanese!!</i>	Japanese

The crucial factor is whether the standard denotes a degree or an individual, which is precisely the kind of analysis I argued for in the previous section.

Should the difference between English and Japanese be handled in terms of something like the DAP, rather than the standard-based analysis I proposed earlier?

**NO:** (32), repeated below, shows that Japanese does have degree abstraction in the syntax, it just doesn't have degree-denoting standards.

- (32) Taroo-wa Hanako yori nagai kasa-o katta.  
 Taroo-TOP Hanako YORI long umbrella-ACC bought  
*Taroo bought a longer umbrella than Hanako.*

More generally, while it may be the case that the sort of contextual/compositional distinction suggested in Beck et al. 2004 is real (perhaps relevant to whether standards are correlatives/adverbials or not?), it does not make the same kinds of typological distinctions as the individual/degree standard distinction.

### 3.2 Version 2

There is, however, a more extreme version of the contextual/compositional distinction, which I call *explicit vs. implicit comparison* in Kennedy (to appear), borrowing terminology from Sapir (1944):

- **Explicit comparison**

Establish an ordering between objects  $x$  and  $y$  with respect to gradable property  $g$  by *mapping*  $g$  (via morphology, syntax or rule) to a property that is true of  $x$  iff the degree to which  $x$  is  $g$  exceeds the degree to which  $y$  is  $g$ .

- **Implicit comparison**

Establish an ordering between objects  $x$  and  $y$  with respect to gradable property  $g$  by manipulating the context in such a way that the *positive form* of  $g$  is true of  $x$  and false of  $y$ .

Explicit comparison is what we've been talking about so far. Implicit comparison does not, strictly speaking, involve a 'comparative' construction at all. Instead, it just takes advantage of the inherent context dependence of the positive form to effect comparison — the fact that the 'cutoff point' between the things it is true and false of can vary according to the context.

- (52) a. Kim is tall (for a 5yr old/gymnast/jockey).  
 b.  $\llbracket pos\ tall \rrbracket^c = \lambda x. \mathbf{tall}(x) \succ \mathbf{stnd}(\mathbf{tall})(c)$

The positive form of a gradable predicate  $g$  is true of an object if it 'stands out' in the context of utterance relative to the kind of measurement encoded by  $g$  (Kennedy 2007).

To see what an implicit comparative language would look like, we need a semantics of implicit comparison. We can use the English *compared to* construction as a model:

- (53) a. Compared to Lee, Kim is tall.  
 b.  $\llbracket compared\ to\ y \rrbracket^c(\llbracket P \rrbracket^c)$  is true of  $x$  iff any context  $c'$  just like  $c$  except that the domain includes just  $x$  and  $y$ ,  $\llbracket P \rrbracket^{c'}$  is true of  $x$ .

Assuming that the standard always induces a non-trivial partitioning on the domain (Klein 1980), we get the results we want:

- (54) i. Kim is tall compared to Lee in  $c \Rightarrow$   
 ii. For any  $c'$  just like  $c$  except that  $Dom = \{\mathbf{k}, \mathbf{l}\}$ ,  
 $\mathbf{tall}(k) \succ \mathbf{stnd}(\mathbf{tall})(c')$  and  $\mathbf{tall}(l) \prec \mathbf{stnd}(\mathbf{tall})(c') \Rightarrow$   
 iii. Kim is taller than Lee in  $c$

**The empirical/typological question:** Are there languages that have only implicit comparison — only true ‘contextual’ standards?

Some intriguing data (from Stassen 1985): languages in which comparison is effected by an adverbial coordination of two clauses, using either negation (Samoan, Dakota, Miskito, Maori, Cayapo, Mangarayi, Sika, ...?) or antonymy (Menomini, Hixkaryana, Mixtec, Shipibo, Yavapai, Motu, ...?):

(55) Ua tele le Queen Mary, ua la’itiiti le Aquitania.  
is big the Queen Mary, is small the Aquitania  
*The Queen Mary is bigger than the Aquitania.* SAMOAN

(56) apeqsek tata’hkesew, nenah teh kan  
more(?) he-is-strong, I and not.  
*He is stronger than me.* MENOMINI

How could we tell? The answer is that in such languages, we should find that ‘comparatives’ show features of the positive form that are absent in explicit comparative languages. Specifically, while the latter involve arbitrary orderings between points on a scale, the former involve *positive form predications*, albeit ones in derived contexts. This distinction is crucial, and leads to the following differences (illustrated with English *compared to*):

**Crisp judgments** Explicit comparison allows fine-grained distinctions in degree; implicit comparison does not. Consider a discussion of two essays which differ in length:

(57) A=500 words; B=400 words. (58) A=500 words; B=495 words.  
a. A is longer than B. a. A is longer than B.  
b. A is long compared to B. b. ??A is long compared to B.

The oddity of (58b) stems from the vagueness of the positive form: we do not like to assert that  $x$  is  $P$  and  $y$  is not  $P$  when  $x$  and  $y$  differ minimally relative to  $P$ . (This ‘boundarylessness’ is what gives rise to borderline cases and the Sorites Paradox).

**Differential measures** Only explicit comparison allows differential interpretations of measure phrases; if MPs were possible at all in implicit comparison, they would have ‘absolute’ interpretations:

(59) a. A is 5 words longer than B.  
b. ??Compared to B, A is 5 words long.

**Negative implicatures** Implicit comparison generates an implicature that the simple positive is false; explicit comparison does not. According to Sawada (2007), we don’t shift the standard if it doesn’t change the truth of the main predicate.

(60) CONTEXT: Gregory is 6’ 9” tall.  
a. Kim is taller than Gregory.  
b. ??Kim is tall compared to Gregory.

**Minimum standard adjectives** don’t have contextual standards, so only allow explicit comparison:

(61) CONTEXT: Two wet umbrellas; one wetter than the other.  
a. This umbrella is wetter than that one.  
b. ??Compared to that umbrella, this one is wet.

The empirical/typological question that we need to answer is whether there are any languages that truly have only implicit comparison (at least as a grammaticized option). Together with my colleague Alan Yu, I have recently begun investigating comparatives in Washo, an endangered language spoken near Lake Tahoe, California, which are of the *A and A'* sort.

The initial results are promising: the (a) sentences below are descriptions of objects that are spread out over the relevant continuum; the (b) sentences are descriptions of the same types of objects in crisp judgment scenarios:

- (62) a. dew-p'ilp'il-i t'-iyeli k'-eʔ-aš de-leleg-i behe:ziŋ.  
 NOM-blue-IMP 3.NOM-big 3sg.unexp.subj-COP-CONJ? NOM-red-IMP small  
*While the blue one is big, the red one is small.*
- b. dew-p'ilp'il-i t'-iyeli-ʔaš de-leleg-i ge-duŋ-t(h)e:ši-wewši.  
 NOM-blue-IMP 3.NOM-big-CONJ NOM-red-IMP 3pro.obj-like-small-almost  
*While the blue one is big, the red one is almost the same size as the blue one.*
- (63) a. gewe gi t'ek'eʔ t'agi:m sa:ʔ-aš sukuʔ t'ek'e-šemu-ye:s sa:ʔi  
 coyote 3pro.subj many pinenuts has-ADV/CONJ dog many-really-NEG have-IMP  
 lak'a muc'im ida heskeʔ  
 one ten and two  
*The coyote, while he has a lot of pinenuts, the dog does not have many twelve.*
- b. gewe t'ek'eʔ t'agi:m sa:ʔ-aš sukuʔ ge-duŋ-t(h)e:ši-wewiš gi-sa  
 coyote many pinenuts have-CONJ dog 3pro.obj-like-small-almost 3pro-also  
 sa:ʔ-i  
 have-IMP  
*While the coyote has a lot of pinenuts, the dog almost has the same amount.*

More work needs to be done here, and on other languages like Washo, but this is certainly the pattern that we would expect.

#### 4 Concluding speculations

If the explicit/implicit distinction turns out to be real, the simplest explanation would be a lexical one: we just say that in implicit comparison languages gradable predicates are type  $\langle e, t \rangle$  and denote context-dependent, vague properties; in explicit comparison languages, gradable predicates are type  $\langle d, et \rangle$  and denote degree relations.

But this seems somehow unsatisfying.

What if instead, we took the fact that (almost?) universally, the positive form of a gradable predicate is unmarked, and hypothesized that the basic meaning of GPs in all languages are of the type  $\langle e, t \rangle$  posited by McConnell-Ginet (1973); Fine (1975); Kamp (1975) and especially Klein (1980)?

We further assume that such denotations are incompatible with explicit comparison (contrary to the position of all these authors).

Finally, we assume that some languages also have functional morphology that turns such properties into degree relations — this is the 'lost' meaning of MORE:

$$(64) \quad \llbracket \text{MORE} \rrbracket = \lambda g_{\langle e, t \rangle} \lambda d \lambda x. \mathbf{m}_g(x) \succeq d$$

The trick, of course, will be figuring out exactly how to characterize  $\mathbf{m}_g$ . Cresswell's (1977) will provide a starting point, as will Alan Bale's recent work (e.g., Bale 2007).

## References

- Bale, Alan Clinton. 2007. Boolean AND and the semantic correlates of gradable adjectives. Paper presented at the Colloque international sur les adjectifs, September 13, 2007.
- Barker, Chris. in press. Parasitic scope. To appear in *Linguistics and Philosophy*.
- Bartsch, Renate, and Theo Vennemann. 1972. The grammar of relative adjectives and comparison. *Linguistische Berichte* 20:19–32.
- Bartsch, Renate, and Theo Vennemann. 1973. *Semantic structures: A study in the relation between syntax and semantics*. Frankfurt: Athäenum Verlag.
- Beck, Sigrid, Toshiko Oda, and Koji Sugisaki. 2004. Parametric variation in the semantics of comparison: Japanese vs. English. *Journal of East Asian Linguistics* 13:289–344.
- Bhatt, Rajesh, and Roumyana Pancheva. 2004. Late merger of degree clauses. *Linguistic Inquiry* 35:1–46.
- Bhatt, Rajesh, and Shoichi Takahashi. 2007. Direct comparisons: Resurrecting the direct analysis of phrasal comparatives. In *Proceedings of SALT 17*, ed. EDITOR, PAGES. Ithaca, NY: CLC Publications.
- Bobaljik, Jonathan. 2007. On comparative suppletion. Ms., University of Connecticut.
- Bresnan, Joan. 1973. Syntax of the comparative clause construction in English. *Linguistic Inquiry* 4:275–343.
- Cresswell, M. J. 1977. The semantics of degree. In *Montague grammar*, ed. Barbara Partee, 261–292. New York: Academic Press.
- Fine, Kit. 1975. Vagueness, truth and logic. *Synthese* 30:265–300.
- Gawron, Jean-Mark. 1995. Comparatives, superlatives and resolution. *Linguistics and Philosophy* 18:333–380.
- Hankamer, Jorge. 1973. Why there are two ‘than’s in English. In *Proceedings of the 9th Annual Meeting of the Chicago Linguistics Society*, ed. Claudia Corum, T. Cedric Smith-Stark, and Ann Weiser. Chicago, IL: Chicago Linguistics Society.
- Heim, Irene. 1985. Notes on comparatives and related matters. Ms., University of Texas, Austin, TX.
- Hoeksema, Jack. 1984. Negative polarity and the comparative. *Natural Language & Linguistic Theory* 1:403–434.
- Ishii, Yasuo. 1991. Operators and empty categories in Japanese. Doctoral Dissertation, University of Connecticut.
- Kamp, Hans. 1975. Two theories of adjectives. In *Formal semantics of natural language*, ed. Edward Keenan, 123–155. Cambridge: Cambridge University Press. Reprinted in 1984.
- Kennedy, Christopher. 1999. *Projecting the adjective: The syntax and semantics of gradability and comparison*. New York: Garland. (1997 UCSC Ph.D thesis).
- Kennedy, Christopher. 2007. Vagueness and grammar: The semantics of relative and absolute gradable predicates. *Linguistics and Philosophy* 30:1–45.
- Kennedy, Christopher. to appear. Modes of comparison. In *Proceedings of the 43rd Annual Meeting of the Chicago Linguistic Society*, ed. EDITORS, PAGES. Chicago, IL: Chicago Linguistic Society.
- Klein, Ewan. 1980. A semantics for positive and comparative adjectives. *Linguistics and Philosophy* 4:1–45.
- Lechner, Winfried. 2001. Reduced and phrasal comparatives. *Natural Language and Linguistic Theory* 19:683–735. Unpublished ms., Universität Tübingen.
- McConnell-Ginet, Sally. 1973. Comparative constructions in English: A syntactic and semantic analysis. Doctoral Dissertation, University of Rochester.
- Merchant, Jason. 2006. Phrasal and clausal comparatives in Greek and the abstractness of syntax. Ms., University of Chicago.
- Sapir, Edward. 1944. Grading: A study in semantics. *Philosophy of Science* 11:93–116.
- Sawada, Osamu. 2007. Pragmatic aspects of implicit comparison: An economy based approach. Ms. University of Chicago.

- Stassen, Leon. 1985. *Comparison and universal grammar*. Oxford: Basil Blackwell.
- von Stechow, Arnim. 1984. Comparing semantic theories of comparison. *Journal of Semantics* 3:1–77.
- Ultan, Russell. 1972. Some features of basic comparative constructions. In *Working papers on language universals, no. 9*, 117–162. Stanford, CA: Language Universals Project, Committee on Linguistics.
- Xiang, Ming. 2003. A phrasal analysis of Chinese comparatives. Paper presented at the 39th Annual Meeting of the Chicago Linguistic Society.

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