

# Parameters of Comparison

## 1 Introduction

What is responsible for variation in the syntactic expression of comparison cross-linguistically? Does this variability indicate a corresponding variability in the underlying semantics of comparative constructions, or is it possible to maintain a universal semantics of comparison and explain the variability in some other way?

- If the former, what is the range of semantic variation? Are there any universal semantic features of comparatives and gradable predicates?
- If the latter, what are the universal semantic features of comparatives and gradable predicates, and what (syntactic, morphological, pragmatic/functional) factors give rise to the observed cross-linguistic variation?

The plan for today is to develop some initial answers to these questions through a detailed look at some differences in comparatives in Japanese and English, following up on a recent study by Beck, Oda, and Sugisaki (2004). Specifically, I will consider two potential parameters of variation:

1. **Explicit vs. implicit comparison:** Does comparison involve specialized morphology that expresses arbitrary ordering relations (explicit comparison), or does comparison involve taking advantage of the inherent context sensitivity of the positive (unmarked) form (implicit comparison)?
2. **Individual vs. degree comparison:** Do comparatives express orderings between arbitrary individuals (individual comparison), or do they (also) express orderings between individuals and arbitrary (linguistically explicit) degrees?

Building on an idea that is considered (and ultimately rejected) by Beck et al. (2004), I will first consider the possibility that Japanese and English differ with respect to the first parameter, and I will provide additional reasons to think that this distinction could be a real parameter of variation. (I will say a lot more about this tomorrow.)

I will then show that once we work out the empirical consequences of this distinction, both Japanese and English turn out to use explicit comparison.

I will then argue that the differences between the two languages follow if they differ with respect to the second parameter, and I will conclude with some fairly hypothetical discussion of what deeper issues might underlie this distinction.

**A warning:** Like most of the work on this topic, I am going to focus exclusively today on comparatives of superiority (*more* comparatives). Another part of the project is to make the case that we ought to be looking at comparatives of inferiority, equatives and superlatives at the same time as we're looking at comparatives, but doing that is beyond my capabilities at this point in time.

## 2 Comparison in English and Japanese

### 2.1 The ‘standard’ analysis of comparatives in English

Let us take as our starting point the following assumption about the universal semantics of gradable predicates, which is the foundation of most analyses of comparatives and gradable predicates:

- Gradable predicates map objects onto abstract representations of measurement (SCALES) formalized as sets of values (DEGREES) ordered along some dimension (HEIGHT, LENGTH, WEIGHT, etc.).

There are two variants of this approach. The first treats gradable adjectives as relations between individuals and degrees, assigning them denotations like (1), where  $\mathbf{tall}(x)$  represents  $x$ 's height (see e.g., Cresswell 1977; von Stechow 1984; Heim 1985, 2000; Schwarzschild to appear; Kennedy and McNally 2005a).

$$(1) \quad \llbracket tall \rrbracket = \lambda d \lambda x. \mathbf{tall}(x) \succeq d$$

The second treats gradable adjectives as functions from individuals to degrees (Bartsch and Vennemann 1972, 1973; Rusiecki 1985; Kennedy 1999).

$$(2) \quad \llbracket tall \rrbracket = \lambda x. \mathbf{tall}(x)$$

The choice between these two analyses does have important empirical consequences, but for today's discussion it doesn't matter which we use. I will choose the measure function analysis because it makes the representations simpler. (And note that on the relational analysis, a measure function is part of the meaning of a gradable predicate.)

What is important for today is that (on either analysis) gradable predicates do not themselves denote properties of individuals, but must instead combine with something to generate a property of individuals.

Let's call this something DEGREE MORPHOLOGY, and see how it works by looking at a canonical example: comparative morphology.

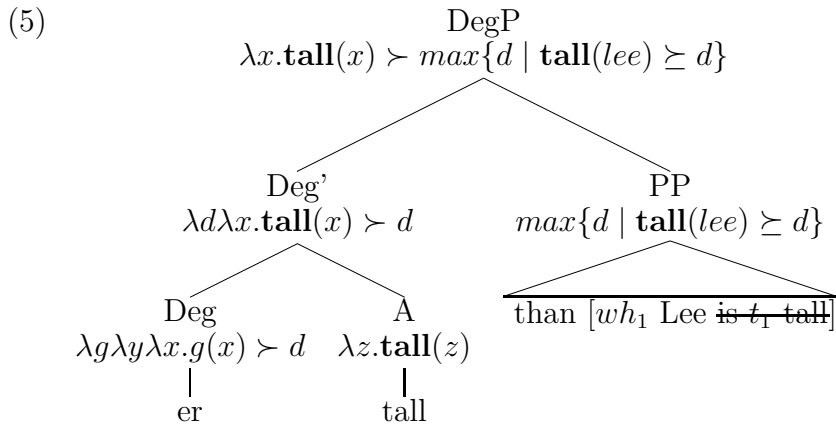
$$(3) \quad \text{Kim is tallerer than Lee (is).}$$

One common way of characterizing the denotation of *more/er* in English (relativized to a measure function semantics for gradable predicates) is as in (4).

$$(4) \quad \llbracket more \rrbracket = \lambda g \in D_{(e,d)} \lambda d \lambda x. g(x) \succ d$$

This analysis assumes that the complement of *than* is a clausal constituent that denotes a maximal degree, which may be targeted by ellipsis (see Chomsky 1965, 1977; Bresnan 1973; von Stechow 1984; Heim 1985, 2000 and many others).

(5) spells out the details of the composition of the comparative predicate in (3) (see Kennedy 2002 for a detailed compositional analysis of the comparative clause).



## 2.2 Comparatives in Japanese

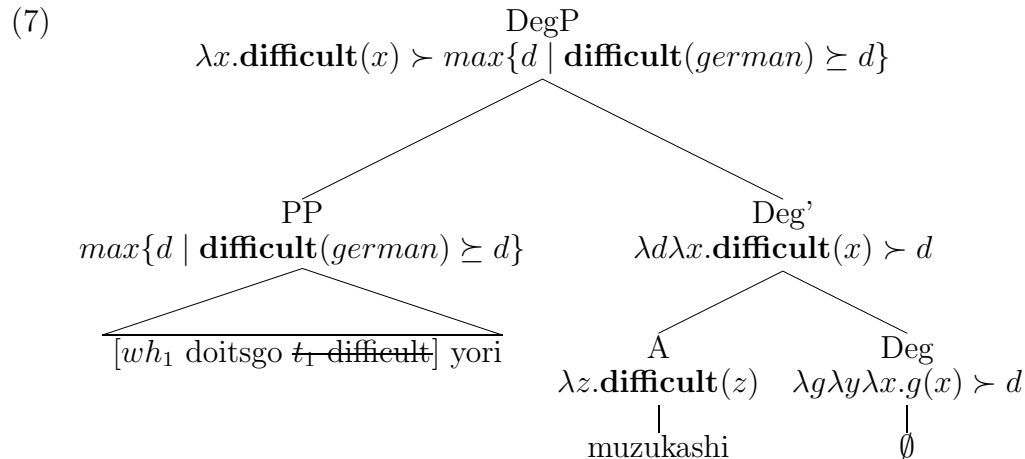
Japanese comparatives are superficially distinct from English comparatives in two ways:

1. There is no overt comparative morpheme (no overt cognate of *more*).
2. The ‘standard’ is introduced by the word *yor*i, which also has a use as a separative preposition (like *from*).

(6a-b) illustrate these differences.

- (6) a. Nihongo-wa doitsgo yori muzukashi.  
 Japanese-TOP German YORI difficult  
 ‘Japanese is more difficult than German.’
- b. Taroo-wa Hanako yori takusan(-no) hon-o katta.  
 Taroo-TOP Hanako YORI many(-GEN) book-ACC bought  
 ‘Taroo bought more books than Hanako.’

These differences illustrate common options in comparatives: 32 of 108 languages surveyed by Ultan (1972) do not have (overt) comparative morphology, and ‘separative comparatives’ constitute of of several broad classes documented by Stassen (1985). But they do not themselves present a challenge to extending an English-style analysis of comparatives to Japanese (see e.g. Ishii 1991):



However, Beck et al. (2004) discuss three more substantive differences between Japanese and English comparatives, that call such an analysis into question.

The first is a puzzling difference in acceptability between (8a-b) on the one hand, and (8b-c) on the other.

- (8) a. 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 did.’  
 b. ?\*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 did.’  
 c. Taroo-wa [Hanako-ga kaita yori] nagai ronbun-o kaita  
 Taroo-TOP [Hanako-ACC wrote YORI] long paper-ACC wrote  
 ‘Taroo wrote a longer paper than Hanako did.’

The second is that Japanese comparatives do not show ‘negative island’ effects:

- (9) a. 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.’  
 b. \*John bought a more expensive book than nobody did.

The third is that Japanese does not allow subdeletion with adjectival comparatives:

- (10) a. Hanako-wa [Taroo-ga ronbun-o kaita (no) yori] takusan hon-o  
 Hanako-TOP [Taroo-NOM paper-ACC wrote (one) YORI] many book-ACC  
 kaita  
 wrote  
 ‘Hanako wrote more books than Taroo wrote papers.’  
 b. \*Kono tana-wa [ano doa-ga hiroi yori] (motto) takai  
 this shelf-TOP [that door-NOM wide YORI] (more) tall  
 ‘This shelf is taller than that door is wide.’

These facts are puzzling if Japanese has a (null) comparative morpheme that has the same semantics we assumed for English *more* in (4), which is repeated below.

$$(11) \quad \llbracket more \rrbracket = \lambda g \in D_{(e,d)} \lambda d \lambda x. g(x) \succ d$$

To see why, consider the analysis of the English sentences corresponding to (28b), (9a), and (50). ~~Strikeout~~ represents material that is elided in the surface form, and the denotations given are just for the underlined comparative predicates.

In (12a), we have abstraction over a degree variable in an attributive adjective. There are interesting interactions with ellipsis here (see Kennedy and Merchant 2000), but otherwise nothing remarkable, and none of the anomaly observed in the Japanese example (28b).

- (12) a. Taroo bought a longer umbrella [ $wh_1$  than Hanako did buy a  $t_1$  long umbrella]  
 b.  $\llbracket more \rrbracket(\llbracket long \rrbracket)(\llbracket [wh_1 \text{ than Hanako bought a } t_1 \text{ long umbrella}] \rrbracket)$   
 $\lambda x. long(x) \succ max\{d \mid \text{Hanako bought an umbrella at least as long as } d\}$

Negative island effects in English arise from the maximality semantics of the comparative clause (von Stechow 1984; Rullmann 1995). In (13a), for example, is no maximal degree that satisfies the description in (13), so the sentence is semantically ill-formed.

- (13) a. \*John bought a more expensive book [ $wh_1$  than nobody did buy a  $t_1$  expensive book]  
 b.  $\llbracket more \rrbracket(\llbracket expensive \rrbracket)(\llbracket [wh_1 \text{ than nobody bought a } t_1 \text{ expensive book}] \rrbracket)$   
 $\lambda x.expensive(x) \succ max\{d \mid \text{nobody bought a book at least as expensive as } d\}$

Finally, subdeletion constructions just require commensurable predicates; otherwise, they are unremarkable:

- (14) a. This shelf is taller [ $wh_1$  than that door is  $t_1$  wide]  
 b.  $\llbracket more \rrbracket(\llbracket tall \rrbracket)(\llbracket [wh_1 \text{ than that door is } t_1 \text{ wide}] \rrbracket)$   
 $\lambda x.tall(x) \succ max\{d \mid wide(that \ door) \succeq d\}$

Clearly, there is some difference between Japanese and English, but what is it?

Beck et al. (2004) use these facts to argue for an analysis of Japanese comparatives that has the following features:

- Japanese comparatives express an ordering not to an arbitrary degree, as in English, but rather to a contextual ‘standard of comparison’.
- The function of the *yor*i-constituent is to provide a basis for computing the standard of comparison.

I will go through the details of Beck et al.’s analysis below, and argue that it cannot be right. First, however, I would like to present an alternative version of this proposal, which implements a hypothesis that I feel could be right: some languages do not have English-like comparative morphology and semantics at all. Instead, they express comparison by taking advantage of the implicit ordering properties of the semantics of the positive (unmarked) form, an idea inspired by work on the comparative initiated by McConnell-Ginet (1973) (see also Kamp 1975; Klein 1980; Larson 1988; Barker 2002).

### 3 Implicit vs. explicit comparison

#### 3.1 The positive form

There are two apparently universal features of the positive form. The first is semantic: most gradable adjectives have context-dependent interpretations in the positive form (with a few important exceptions, that I will describe shortly). This is illustrated by (15).

- (15) The coffee in Rome is expensive.

Whether this sentence is true or not depends in large part on the context in which it is uttered. (15) could be judged true if asserted as part of a conversation about the cost of living in various Italian cities, as in (16a), but false in a discussion of the cost of living in Chicago vs. Rome, as in (16b).

- (16) a. In Rome, even the coffee is expensive!  
 b. The rents are high in Rome, but at least the coffee is not expensive!

One account for this variability is that the positive form is evaluated with respect to a **DELINEATION FUNCTION**: a contextual parameter (like the assignment function) that maps a measure function to a degree that represents an appropriate standard of comparison based on features of the context of utterance (what is being talked about, the interests/expectations of the participants in the discourse, etc.; see Lewis 1970; Graff 2000; Barker 2002; Kennedy and McNally 2005a; Kennedy 2005):

$$(17) \quad \llbracket(\text{is expensive})\rrbracket^s = \lambda x.\mathbf{expensive}(x) \succ s(\mathbf{expensive})$$

Here  $s$  is the delineation function. Even though the denotation of the predicate is fixed, its truth conditions will vary in the different examples in (16) vary according to the contextual features that affect the computation of  $s(\mathbf{expensive})$ .

The second (possibly) universal feature of the positive form is the absence of overt degree morphology. For some researchers, this fact calls into question a degree-based semantics of gradable adjectives (see in particular Klein 1980), but working within the assumptions adopted here, we have two options for the compositional semantics of the positive form. The first is to assume a degree morpheme *pos* with a denotation along the lines of (18).

$$(18) \quad \llbracket pos \rrbracket^s = \lambda g \in D_{\langle e,d \rangle} \lambda x.g(x) \succ s(g)$$

The second is to assume a lexical type-shifting rule that has the same effect:

$$(19) \quad \text{For any lexical item } A, \text{ if } \llbracket A \rrbracket \in D_{\langle e,d \rangle}, \text{ then there is a lexical item } A' \text{ such that: } \\ \llbracket A' \rrbracket^s = \lambda x.\llbracket A \rrbracket(x) \succ s(\llbracket A \rrbracket)$$

I think it is an open question as to which analysis is the correct one. Even more interesting is the possibility that both options are possible — that languages may differ on whether they ‘morphologize’ the positive form type shifting rule (cf. Chierchia 1998). This is an intriguing idea, and one that should be followed up on. For now, I will assume type-shifting, because it leads to an interesting prediction about the typology of comparison.

### 3.2 Implicit comparison

The semantics of the positive form already supports the expression of comparison, an observation that goes back to Sapir 1944. Since the delineation function is context-sensitive, one way to convey the fact that an object  $x$  has a higher degree of property  $G$  than an object  $y$  is to modify the context so that the delineation function makes the positive form true of  $x$  but false of  $y$ .

This will be the case only if  $x$ ’s degree of  $G$  exceeds the standard but  $y$ ’s does not; given the inherent ordering on the scale, it will follow that  $x$  has a greater degree of  $G$  than  $y$ . Something like this is arguably what is going on in examples like (20).

- (20) a. Compared to Lee, Kim is tall.  
b. With respect to Lee, Kim is tall.

We can provide a formal analysis of expressions like *compared to* and *with respect to* by treating them as expressions that modify the delineation function (or the contextual information that the delineation function accesses). In particular, let us assume the denotation for the *compared to* constituent in (21a), where  $s[x]$  represents a delineation function ‘based on  $x$ ’, the details of which are spelled out in (21b).

- (21) a.  $\llbracket \text{compared to } x \rrbracket^s = \lambda p. \llbracket p \rrbracket^{s[x]}$   
 b. For any delineation function  $s$ ,  $s[x]$  is a delineation function just like  $s$  except that for any  $g$  in the domain of  $s$ ,  $s[x](g) \succeq g(x)$ .

In other words, *compared to*  $x$  modifies the delineation function so that it is constrained to locate the standard of comparison only within that region of its adjectival argument's scale whose lower bound is the degree to which  $x$  has the relevant property.

On this view, the denotation of the adjectival predicate in (20) is (22): it is true of an object if its height exceeds a standard of comparison that comes from that part of the height scale beginning with Lee's height, which in turn entails that the object is taller than Lee.

$$(22) \quad \llbracket \text{tall} \rrbracket^{s[\text{lee}]} = \lambda x. \mathbf{tall}(x) \succ s[\text{lee}](\mathbf{tall})$$

Following Sapir (1944), I will make the following distinction between IMPLICIT COMPARISON and EXPLICIT COMPARISON.

- (23) a. *Implicit Comparison*  
 Establish an ordering between objects  $x$  and  $y$  with respect to gradable property  $g$  using the positive form by manipulating the context or delineation function in such a way that the positive form true of  $x$  and false of  $y$ .  
 b. *Explicit Comparison*  
 Establish an ordering between objects  $x$  and  $y$  with respect to gradable property  $g$  using special morphology whose conventional meaning has the consequence that the degree to which  $x$  is  $g$  exceeds the degree to which  $y$  is  $g$ .

All languages have 'positive form gradable adjectives' — this is a fundamental component of the inventory of natural language — so all languages have some way of expressing implicit comparison. Is it possible that some languages have only implicit comparison?

At a theoretical level, this seems like a distinct possibility. Explicit comparison requires specific degree morphology. However, if the positive form is (at least potentially) lexically derived, implicit comparison could be achieved without degree morphology. We therefore have the potential to ground this parameter in a familiar distinction: the presence/absence of functional (degree) morphology.

- (24) *The Implicit/Explicit Comparison 'Parameter'*  
 Languages differ in their inventory of degree morphemes. Some have no explicit comparison morphology (and possibly no 'true' degree morphology at all — no expressions of type  $\langle \langle e, d \rangle, \alpha \rangle$ ; see Kennedy and McNally 2005b); in which case they have implicit comparison.

The following empirical facts further suggest that this is a hypothesis worth investigating. (More on both of these tomorrow.)

1. The typological data clearly show that many languages do not have (overt) comparative morphology (33/108 languages in Ultan's survey).
2. The typological data also clearly show that the primary means of expressing comparison in some languages are constructions that (superficially, at least) appear to involve implicit comparison (Stassen's 'conjoined comparatives').

What I want to show now is that the differences between English and Japanese that Beck et al. 2004 document follow if Japanese has implicit comparison while English has explicit comparison.

### 3.3 Japanese as an implicit comparison language

Let us assume based on the absence of comparative morphology in Japanese that Japanese lacks explicit comparison morphology (and possibly lacks true degree morphology altogether), and that adjectives come out of the lexicon with positive form semantics.

- (25) a.  $[[long]_{English}^s = \lambda x.\mathbf{long}(x)$   
 b.  $[[long]_{Japanese}^s = \lambda x.\mathbf{long}(x) \succ \mathbf{s}(\mathbf{long})$

Second, let us assume a semantics for *yor*i parallel to the analysis of English *compared to*: *yor*i *x* ‘resets’ the delineation function with respect to which its adjectival argument is evaluated based on *x*.

- (26)  $[[yor]i]^s = \lambda x \lambda g.[g]^{s[x]}$

This analysis predicts that Japanese comparatives and English *compared to* constructions should have essentially the same properties. (Beck et al.’s analysis also predicts this correlation, as I will show below.) This appears to be mainly true.

#### 3.3.1 Variability

If we look at English examples involving *compared to*, we see the same pattern of variability observed in (28), repeated in (28).

- (27) a. Compared to what Hanako bought, Taroo bought many umbrellas.  
 b. ?Compared to what Hanako bought, Taroo bought a long umbrella.  
 c. Compared to what Hanako wrote, Taroo wrote a long paper.

- (28) a. Taroo-wa [Hanako-ga katta yori] takusan(-no) kasa-o  
 Taroo-TOP [Hanako-NOM bought YORI] many(-GEN) umbrella-ACC  
 katta.  
 bought  
 ‘Taroo bought more umbrellas than Hanako did.’  
 b. ?\*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 did.’  
 c. Taroo-wa [Hanako-ga kaita yori] nagai ronbun-o kaita  
 Taroo-TOP [Hanako-ACC wrote YORI] long paper-ACC wrote  
 ‘Taroo wrote a longer paper than Hanako did.’

This follows quite naturally on the analysis of *yor*i/*compared to* proposed here. Assuming that the denotation of the free relative complement of *compared to* in examples like (27a-c) and the complement of *yor*i in (28a-c) (see below) is a maximal plural entity (Jacobson 1995), the result of the *compared to*/*yor*i constituents is to introduce the modified delineation functions expressed in (29a-c), respectively.



- (29) a.  $s[\max\{x \mid \textit{Hanako bought } x\}]$   
 b.  $s[\max\{x \mid \textit{Hanako bought } x\}]$   
 c.  $s[\max\{x \mid \textit{Hanako wrote } x\}]$

The problem with (27b) and (28b) comes from the difficulty of computing the degree on which the modified standard is supposed to be based.

According to the analysis of implicit comparison outlined above, the delineation functions in (29) must pick out standard of comparison from the region of their adjectival argument's scales whose lower values are the degrees expressed by (30a-c), respectively.

- (30) a. **many**( $\max\{x \mid \textit{Hanako bought } x\}$ )  
 b. **long**( $\max\{x \mid \textit{Hanako bought } x\}$ )  
 c. **long**( $\max\{x \mid \textit{Hanako wrote } x\}$ )

With (30a) there is no problem: the 'cardinality' function (or whatever **many** measures) takes a plurality and returns a measure of its size.

With (30b) there is a problem, however: what is the length of the plurality of objects that Hanako bought? Is it the maximal length of all the objects laid on the ground one after the other? The length of the longest object? I don't know — my inclination is to say that this notion is simply undefined, i.e., *long* expects an atom as its argument (cf. Schwarzschild 2002), explaining the anomaly of *compared to/ynori* in these examples.

(30c) ought to run into this problem as well, but if we take the free relative to range over subparts of a single 'document', rather than over complete documents (i.e., if we go with the atelic interpretation of the creation verb), then we're all set. We thus have an explanation for Ishii's (1991) observation that these comparatives are best with (this sense of) creation verbs.

Finally, as pointed out by Beck et al. 2004, (27b) (and the Japanese comparative) can be made acceptable by fixing the context so that it is clear that Hanako bought only one object. This is expected under the analysis outlined here, since in such a context the free relative will introduce a single object whose length can be measured with no problem.

### 3.3.2 Negative islands

As with Japanese comparatives, we don't get negative island effects with *compared to*.

- (31) a. Compared to the one that nobody bought, John bought an expensive book.  
 b. \*John bought a more expensive book than nobody did.

This is because the argument of *compared to* is a relative clause rather than a comparative clause, and so doesn't run into the problems with maximality.

Assuming that *ynori* has the same semantics as *compared to*, it should also select for a DP rather than a degree-denoting expression (like English *than*), and so is also not expected to exhibit negative island effects.

### 3.3.3 Adjectival subdeletion

Merely assuming that Japanese has implicit comparison is not enough to derive the prohibition against adjectival subdeletion. As shown by (32a-b), we can get a subdeletion-like interpretation of *compared to* constructions, though a true subdeletion structure is ungrammatical (32c).

- (32)
- a. Compared to the width of the door, this shelf is tall.
  - b. Compared to how wide the door is, this shelf is tall.
  - c. \*Compared to the door is wide, this shelf is tall.
  - cf. *This shelf is taller than the door is wide.*

Beck et al. (2004) introduce another assumption to rule out the Japanese version of (32b): Japanese does not allow abstraction over degrees. I will say more about this below; at the moment it is enough to observe that if Japanese is an implicit comparison language because it has no degree morphology, and adjectives adjectives instead come out of the lexicon with positive form semantics, then this generalization follows: *adjectives have no degree arguments to bind!*

### 3.4 Summary

- The Implicit/Explicit Comparison distinction is a potential ‘parameter’ of variation in the expression of comparison, based on whether a language has explicit comparison morphology or not.
- A language could lack explicit comparison morphology either because it lacks just this particular morpheme, or because it lacks true degree morphology (morphology of type  $\langle\langle e, d \rangle, \alpha\rangle$ ) entirely.
- In the latter case, the positive form is lexically derived: gradable adjectives are effectively type  $\langle e, t \rangle$ , whereas in explicit comparison languages they are type  $\langle e, d \rangle$ .
- The facts documented by Beck et al. 2004 follow if Japanese is an implicit comparison language due to the absence of true degree morphology, or if it simply lacks explicit comparative morphology and whatever morphology is involved in degree abstraction structures.

The ‘or’ in the last bullet implies a question that only the examination of many languages will answer: is there a correlation between implicit comparison and lack of degree morphology *in general*? My sense is that if the implicit/explicit distinction is a real point of variation, then it will hinge on the presence/absence of degree morphology, rather than the specific inventory of degree morphemes, but that remains to be seen.

## 4 But is comparison in Japanese really implicit?

Showing that Japanese would behave in the way documented by Beck et al. 2004 if it has implicit comparison is of course not enough; we also need to identify independent tests for implicit comparison and see whether Japanese has those properties.

### 4.1 Diagnostics for implicit comparison

#### 4.1.1 Crisp judgments

A fundamental semantic property of the positive form is that it gives rise to borderline cases: objects for which it is unclear whether or not the predicate holds. Let us assume, following Graff 2000, that this is due to its conventional meaning.

In particular, let us assume that this is a feature of the delineation function, which is constrained to return a value that counts as a *significant degree* of the relevant property in the context of utterance (possibly relative to a world; see Kennedy 2005). According to Graff, borderline cases arise because of uncertainty about what exactly this degree is.

This means that implicit comparison of  $x$  and  $y$  relative to  $g$  (i.e., an assertion that  $x$  is  $g$  compared to  $y$ ) actually makes a stronger claim than explicit comparison of  $x$  and  $y$  ( $x$  is more  $g$  than  $y$ ):  $g(x)$  must exceed  $g(y)$  by a significant amount.

This predicts a difference in acceptability of explicit and implicit comparison in contexts involving CRISP JUDGMENTS: very slight differences between the compared objects.

(33) CONTEXT: A 600 word essay and a 200 word essay

- a. This essay is longer than that one.  
 $\mathbf{long}(e_1) \succ \mathbf{long}(e_2)$
- b. Compared to that essay, this one is long.  
 $\mathbf{long}(e_1) \succ s[e_2](\mathbf{long})$

(34) CONTEXT: A 600 word essay and a 590 word essay

- a. This essay is longer than that one.  
 $\mathbf{long}(e_1) \succ \mathbf{long}(e_2)$
- b. ??Compared to that essay, this one is long.  
 $\mathbf{long}(e_1) \succ s[e_2](\mathbf{long})$

Explicit comparison in (34a) simply requires an asymmetric ordering between the degrees to which two objects possess the relevant property, so crisp judgments are no problem.

Implicit comparison in (34b) requires the first novel to have a degree of length that is significant relative to the region of the length scale whose lower bound is the length of the second essay. Assuming that very small differences in a property never count as significant (see Graff 2000 for justification and an explanation of how this assumption leads to an explanation of the Sorites Paradox), (34b) cannot possibly be true in the indicated context, making it an infelicitous description of such a state of affairs.

#### 4.1.2 Absolute gradable adjectives

Absolute gradable adjectives include examples like *wet*, *open*, *bent*, *dry*, *closed* and *straight*, which are special in having positive forms in which the standard of comparison is not context dependent, but rather fixed to an endpoint of a scale (Rotstein and Winter 2004; Kennedy and McNally 2005a; Kennedy 2005).

The explanation for this requires a separate talk; for today, I will simply assume that this means that the truth conditions of the positive form are stipulated in the adjectives' lexical entries, rather than determined by the delineation function (see Kennedy 2005 for a more principled explanation).

- (35) a.  $[[_{\text{AP}} \text{ bent}]]^s = \lambda x. \mathbf{bent}(x) \succ \min(\text{SCALE}(\mathbf{bent}))$   
 b.  $[[_{\text{AP}} \text{ straight}]]^s = \lambda x. \mathbf{straight}(x) = \max(\text{SCALE}(\mathbf{straight}))$

Crucially, the standard of comparison is not dependent on the delineation function. As a result, manipulation of the delineation function will have no semantic effect, and implicit comparison should be infelicitous:



- (36) a. B is more bent than A.  
 b. ??Compared to A, B is bent.

- (37) a. A is straighter than B.  
 b. ?Compared to B, A is straight.

(37b) is actually a bit better than (36b) (as long as A is not too far away from being straight). This probably relates to the fact that absolute adjectives with maximum standards are more likely to allow imprecise interpretations.

#### 4.1.3 Differential measurements

Measure phrases override the semantics of the positive form. The simplest analysis is one in which MPs combine directly with gradable predicates:

$$(38) \quad \llbracket 10cm \rrbracket = \lambda g \in D_{e,d} \lambda x. g(x) \succ \mathbf{10\ cm}$$

In effect, composition of a MP and a gradable adjective generates an ‘absolute predicate’ (cf. Pinkal 1995), predicting that implicit comparison should be impossible: there is no delineation function to manipulate.

- (39) a. Kim is 10 cm taller than Lee.  
 b. ??Compared to Lee, Kim is 10cm tall.

MPs with explicit comparatives can be handled in different ways. We could modify the semantics of explicit comparison to introduce a degree argument that represents the difference between the compared objects (Hellan 1981; von Stechow 1984; Schwarzschild and Wilkinson 2002):

$$(40) \quad \llbracket more \rrbracket = \lambda g \lambda d \lambda d' \lambda x. g(x) - d = d'$$

Or we could analyze comparatives as adjectival modifiers that take a measure function and return a new one that uses a scale whose minimal value is the degree that corresponds to the standard (Rotstein and Winter 2004; Neeleman, Van de Koot, and Doetjes 2004; Kennedy and McNally 2005a). Either way, we both allow for MPs in comparatives and derive the correct interpretations.

## 4.2 Results: Japanese has explicit comparison after all



### 4.2.1 Crisp judgments

Japanese comparatives are felicitous in crisp judgment contexts. For example, (41) is a perfectly good way of describing the relation between a 1000 word paper and a 995 paper, though the corresponding *compared to* construction in English would not be.

- (41) Kono peepaa-wa ano peepaa yori nagai.  
 this paper-TOP that paper YORI long  
 ‘This paper is longer than that one.’

### 4.2.2 Absolute adjectives

In the context represented below, both of the Japanese examples in (42a-b) are perfectly felicitous:

Rod A:  Rod B: 

- (42) a. Kono sao-wa ano sao yori-wa massugu-da.  
 this rod-TOP that rod YORI-wa straight-cop  
 ‘This rod is straighter than that rod.’  
 b. Aono sao-wa kono sao yori motto magatte-iru.  
 that rod-TOP thist rod YORImuch bent-be  
 ‘That rod is more bent than this rod.’

In particular, they are comparable in status to the English comparatives in (36) rather than the *compared to* constructions in (37), indicating that they involve explicit comparison.

#### 4.2.3 Differential measurements

As shown by (43a-b), Japanese comparatives allow measure phrases, and the MPs are assigned differential interpretations, again pointing to the conclusion that Japanese has explicit comparison.

- (43) a. Gozira-wa Rodan yori sanzyuu-meetoru takai.  
 Godzilla-TOP Rodan from 30-meters high/tall  
 ‘Godzilla is 30 m taller than Rodan.’  
 b. Gozira-wa Rodan yori hyaku-ton omoi.  
 Godzilla-TOP Rodan from 100-tons heavy  
 ‘Godzilla is 100 tons heavier than Rodan.’

This is particularly interesting considering the fact that MPs are impossible in the positive form; to the extent that (44a-b) are OK, they force a comparative interpretation.

- (44) a. \*Gozira-wa sanzyuu-meetoru takai.  
 Godzilla-TOP 30-meters high/tall  
 ‘Godzilla is 30 m tall.’ (Though perhaps OK as ‘Godzilla is 30 m taller than some contextual standard of comparison.’)  
 b. \*Gozira-wa hyaku-ton omoi.  
 Godzilla-TOP 100-tons heavy  
 ‘Godzilla is 100 tons heavy.’ (Though perhaps OK as ‘Godzilla is 100 tons heavier than some contextual standard of comparison.’)

To express the meaning that we’re trying to get at in (43), it is necessary to directly predicate the measure phrase of a degree:

- (45) a. Gozira-wa sintyoo-ga sanzyuu-meetoru da/aru.  
 Godzilla-TOP height-NOM 30-meters cop/exist  
 ‘Godzilla is 30 meters tall.’ (OR: ‘As for Godzilla, his height is 30 meters.’)  
 b. Gozira-wa taizyuu-ga hyaku-ton da/aru  
 Godzilla-TOP weight-NOM 100-tons cop/exist  
 ‘Godzilla weighs 100 tons.’ (OR: ‘As for Godzilla, his weight is 100 tons.’)

Whatever is going on with MPs in the positive form, one thing is clear: the semantics of the comparative cannot be the same as the semantics of the positive.

### 4.3 Summary

The conclusion to be drawn from these facts is that Japanese, like English, has explicit comparison. In particular, *yori*-comparisons involve explicit comparison. (Japanese may have other constructions to express implicit comparison, e.g. *kurabe-tara* ‘compare-conditional’.)

But if this is the case, and if explicit comparison involves the sort of semantics I outlined for English, then what is responsible for the observed differences in comparatives in the two languages?

## 5 Individual vs. degree comparison

### 5.1 Back to Beck et al.

Before presenting an answer to this question, I want to return to the analysis of Japanese comparatives that Beck et al. (2004) actually develop (as opposed to my implicit comparison analysis, which is merely inspired by their proposals).

Recall that Beck et al.’s analysis makes the following central claims:

- Japanese comparatives express an ordering not to an arbitrary degree, as in English, but rather to a contextual ‘standard of comparison’.
- The function of the *yori*-constituent is to provide a basis for computing the standard of comparison.

Beck et al. go back and forth about whether the right characterization of the meaning of (46) is (47a) or (47b).

(46) Kono peepaa-wa ano peepaa-yori nagai.  
 this paper-top that paper-YORI long

- (47) a. Compared to that paper, this paper is long.  
 b. Compared to that paper, this paper is longer.

In the end, they settle on (47b) — in effect acknowledging that Japanese has explicit comparison — primarily because of the measure phrase data. Specifically, they propose that Japanese has a (null) comparative morpheme with the denotation in (48a) ((48b) is their denotation for English *more*).

- (48) a.  $\llbracket \text{MORE}_J \rrbracket = \lambda g \in D_{\langle e, d \rangle} \lambda x. g(x) \succ \mathbf{c}$   
 b.  $\llbracket \text{MORE}_E \rrbracket = \lambda g \in D_{\langle e, d \rangle} \lambda d \lambda x. g(x) \succeq d$

(48a) is similar to (48b) in expressing an asymmetric ordering, but different in not selecting an explicit standard argument. Instead the standard is provided by a contextual variable over degrees  $\mathbf{c}$ .

In effect,  $\mathbf{c}$  is a kind of ‘degree anaphor’ whose value must be contextually determined. One way to do this is to use a *yori*-phrase, which makes a particular object highly salient; this object may then be used to calculate the value of  $\mathbf{c}$ .

On this view, the variability facts can be explained in essentially the way I described above: the problem with (49) is that there isn't a well defined mapping from the maximal plural object that Hanako bought to lengths, so the value of **c** can't be determined.

- (49) ?\*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 did.'

Likewise, the lack of negative island effects follow if we assume that the complement of *yori* in all the relevant examples is a relative clause, rather than a comparative clause — a degree abstraction structure.

However, something more needs to be said about the lack of adjectival subdeletion, since nothing about (48a) is in principle incompatible with making a degree salient via standard comparative clause syntax.

- (50) \*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.'

To rule out such an analysis, Beck et al. propose the following parameter, and hypothesize that English and Japanese have different settings: English does have binding of degree variables, and Japanese doesn't.

- (51) *Degree Abstraction Parameter* (DAP)  
 A language {does, does not} have binding of degree variables in the syntax.

This eliminates the possibility of interpreting (50) along the lines of (52).

- (52) Compared to how wide the door is, this shelf is taller than that.

To summarize, Beck et al. (2004) claim that Japanese differs from English in two ways:

1. With respect to the semantics of the comparative morphology itself, which is 'contextual' in Japanese but 'compositional' in English.
2. With respect to the Degree Abstraction Parameter.

The first thing to observe is that these differences are completely independent from each other, so we expect a four-way typology here:

- (53) a. [compositional comparison; degree abstraction] (English)  
 b. [contextual comparison; no degree abstraction] (Japanese)  
 c. [contextual comparison; degree abstraction] (???)  
 d. [compositional comparison; no degree abstraction] (???)

But we won't find one, which is the real problem with Beck et al.'s proposal:

- A language of type (53c) would look just like English, because the availability of degree abstraction would allow the generation of:
  - subdeletion structures,

- attributive degree binding structures, and
- negative island violating structures

The former two would make salient degrees that could be plugged in as the value for  $\mathbf{c}$ , generating interpretations that would be equivalent to what we would derive by just integrating the comparative clause into the meaning compositionally.

- A language of type (53d) would look just like Japanese, as I will show in the next section.

To preview the conclusion, the crucial factor is whether standards can denote degrees or not, not whether the comparative morphology is ‘contextual’ or ‘compositional’. This leads to our second potential parameter of comparison.

## 5.2 English and Japanese have different standards of comparison

Let us assume with Beck et al. 2004 that the impossibility of adjectival subdeletion in Japanese indicates that standards cannot be degree abstraction structures, while the possibility of subdeletion in English indicates that they can be.

In purely descriptive terms, then, the crucial difference is the following:

- (54)
- i. Complex standards in Japanese are (only) type  $e$ .
  - ii. Complex standards in English are (potentially) type  $d$ .

This difference could be due to the DAP. However, it could also be due to a difference in the semantics of (explicit) comparison in the two languages: whether it involves INDIVIDUAL COMPARISON or DEGREE COMPARISON.

To see what I mean by this, first consider the fact that the semantics of explicit comparison that I gave in (4), repeated in (55), will not work for Japanese if in fact standards are always individual denoting, because it expects a standard of type  $d$ .

$$(55) \quad \llbracket more \rrbracket = \lambda g \in D_{\langle e, d \rangle} \lambda d \lambda x. g(x) \succ d$$

This observation is presumably what led Beck et al. 2004 to their ‘contextual’ semantics (where the standard is still a degree, but is not compositionally related to the *yoru*-constituent).

However, there is strong evidence that (55) is not the only option even in English and languages like English. As far back as Hankamer 1973, it has been suggested that English standards may be either degree abstraction structures or simple DPs: this is the ‘phrasal’ vs. ‘clausal’ distinction illustrated by data like (56)-(57) (see also Hoeksema 1984; Heim 1985; Kennedy 1999):

- (56)
- a. Noone<sub>1</sub> is taller [PP than [DP himself<sub>1</sub>]]
  - b. \*Noone<sub>1</sub> is taller [PP than [CP himself<sub>1</sub> is]]
- (57)
- a. Kim doesn’t know who<sub>1</sub> Lee is taller [PP than  $t_1$ ]
  - b. \*Kim doesn’t know who<sub>1</sub> Lee is taller [PP than [CP  $t_1$  is]]

This distinction is illustrated even more dramatically in languages that have both ‘fixed-case’ and ‘derived case’ comparatives (Latin, Russian, Italian ‘*che*’ vs. ‘*di*’?):



- (58) a. Cato Ciceron-e eloquentior est.  
 Cato Cicero-ABL more-eloquent is  
 ‘Cato is more eloquent than Cicero.’ LATIN FIXED CASE
- b. Cato est eloquentior quam Cicero.  
 Cato is more-eloquent than Cicero-NOM  
 ‘Cato is more eloquent than Cicero.’ LATIN DERIVED CASE

There is little doubt that the standard in (58a) is a simple DP. But if this is true for fixed case comparatives and for phrasal comparatives in the (a) sentences in (56) and (57), then it cannot be the case that explicit comparative morphology is restricted to the denotation in (55). Instead, it should allow for both type  $d$  or type  $e$  standards.

Following Heim 1985 and Kennedy 1999, let us hypothesize two lexical entries for the explicit comparative morpheme MORE, which correspond to what I called ‘Individual’ (= phrasal) and ‘Degree’ (= clausal) comparison above.

- (59) a. *Individual Comparison*  
 $[[\text{MORE}_I]] = \lambda g \lambda y \lambda x. g(x) \succ g(y)$
- b. *Degree Comparison*  
 $[[\text{MORE}_D]] = \lambda g \lambda d \lambda x. g(x) \succ d$

Both Individual Comparison and Degree Comparison express asymmetric ordering relations between arbitrary degrees, and introduce interpretations that are independent of the semantics of the positive form. They differ in semantic type:

- (59a) is type  $\langle\langle e, d \rangle, \langle e, \langle e, t \rangle \rangle\rangle$ , so Individual Comparison expresses a relation of type  $\langle e, \langle e, t \rangle \rangle$ . The standard degree is derived by applying the measure function denoted by the adjective to the (individual) standard argument.
- (59b) is type  $\langle\langle e, d \rangle, \langle d, \langle e, t \rangle \rangle\rangle$ , so Degree Comparison expresses a relation of type  $\langle d, \langle e, t \rangle \rangle$ . The standard degree is provided directly by the standard argument.

Returning to Japanese vs. English, if Beck et al. 2004 are correct that the two languages differ with respect to the DAP, then they must also differ with respect to Individual vs. Degree Comparison: since Japanese does not have individual-denoting standards, the semantics of the comparative must always be (59a).

However, there is another possibility to consider as the crucial ‘parameter’ of variation between the two languages, which is expressed in (60).

- (60) *The Standard Type Parameter*  
 Languages may differ in whether the comparative morphology selects a standard of type  $d$  (degree comparison) or of type  $e$  (individual comparison).

This is not really a ‘parameter’; rather it has to do with the possibility of assigning distinct semantic types and corresponding meanings to a morpheme with a single core meaning (explicit comparison).

What is clear is that if Japanese has only individual comparison, while English has both types, this would entail a corresponding difference in the syntactic expression of standard arguments: standard arguments in Japanese would have to be individual denoting expressions, while standards in English could denote either to individuals or degrees.

### 5.3 Explaining the differences between Japanese and English

Either of the two ways of characterizing the difference between Japanese and English presented above have the following consequence for the syntax of the standard expression (the complement of *yor*/*than*) in the two languages:

- Complex standards in Japanese are relative clauses (Ueyama 1998).
- Complex standards in English may be comparative clauses (degree descriptions).

This is a conclusion that Beck et al. 2004 themselves arrive at. This distinction — together with the corresponding semantic difference between individual/degree comparison — is enough to explain the differences between comparatives in Japanese and English discussed in Beck et al. 2004.

Negative island effects arise in an English example like (61) because the comparative clause fails to denote: it should return a maximal degree, but the degree description fails to provide one (von Stechow 1984; Rullmann 1995).

- (61) \*John bought a more expensive book than nobody did.  
 $max\{d \mid \textit{nobody bought a book at least as expensive as } d\}$

In the Japanese comparative in (62), the standard is individual denoting, and has the semantics of a relative clause: there is no problem interaction with a maximality operator. This is also true of the English translation, which is a case of individual comparison.

- (62) 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.’

Adjectival subdeletion structures necessarily involve degree comparison, since they relate degrees from different (or shared) scales. Apparent cases of nominal subdeletion in Japanese, such as (63), actually involve internally headed relative clauses.

- (63) Hanako-wa [Taroo-ga ronbun-o kaita yori] takusan hon-o kaita  
 Hanako-TOP [Taroo-NOM paper-ACC wrote YORI] many book-ACC wrote  
 ‘Hanako wrote more books than Taroo wrote papers.’

Finally, the variability data can be accounted for even more directly than the analysis I outlined earlier (though using the same basic assumptions).

Before showing this, however, it is important to establish a more general empirical point: when we focus on cases of individual comparison, we can see that the variability effects arise in both Japanese and English!

This becomes obvious when we look at the right minimal pairs. The Japanese example in (64a) should not be compared to English (64b), since the latter can be analyzed as a degree abstraction structure, as shown in (64c) (Kennedy and Merchant 2000).

- (64) a. ??Taroo-wa [Hanako-ga katta yori] nagai kasa-o katta.  
           Taroo-TOP [Hanako-NOM bought YORI] long umbrella-ACC bought  
 b. Taroo bought a longer umbrella than Hanako bought/did/ $\emptyset$ .  
 c. ... than [<sub>CP</sub> *wh*<sub>1</sub> Hanako did ~~buy a *t*<sub>1</sub> long umbrella~~]

Instead, (64a) should be compared to (65a), in which the standard is a free relative, since this provides the closest parallel to the Japanese relative in (64a) (Beck et al. 2004).

- (65) a. ?Taroo bought an umbrella longer than what Hanako bought.  
 b. Taroo bought an umbrella more expensive than what Hanako bought.

(65a) is not horrible, but it is clearly less acceptable than (65b), reproducing the ‘variability’ effect seen in Japanese. (I have postposed the adjective to avoid interference from presuppositional effects generated by *Aer N* word order; compare ??*John is a taller man than Mary* with *John is a man taller than Mary*.)

In both the Japanese example in (64a) and the English example in (65a), the semantics of individual comparison derives a meaning for the comparative predicate of the form in (66).

$$(66) \quad \lambda x.\mathbf{long}(x) \succ \mathbf{long}(\max\{x \mid \textit{Hanako bought } x\})$$

The expression to the right of the ordering relation runs into exactly the same problem we saw with *compared to* earlier: we cannot map the plurality of objects that Hanako bought onto a length.

If the context can be adjusted so that it is clear that Hanako bought only one thing, then both the English and and Japanese examples are fine. If, however, it is clear that she bought many things, then both are bad, for the reasons we discussed earlier.

The reason that (65b) is OK (like the corresponding Japanese example) is that here the measure function is **many**, which is a function from plural objects to their cardinalities. No problem.

Finally, the reason that the English sentence in (64b) is OK is because it involves degree comparison. The comparative predicate has the semantics in (67); crucially, no attempt is made to map a plurality to its length.

$$(67) \quad \lambda x.\mathbf{long}(x) \succ \max\{d \mid \textit{Hanako bought an umbrella at least as long as } d\}$$

A final bit of relevant data is the fact that anaphoric *one* in English and the nominalizer *no* in Japanese (which introduces the same sort of meaning) eliminate the variability effect.

- (68) Taroo-wa [Hanako-ga katta no yori] nagai kasa-o katta.  
 Taroo-TOP [Hanako-NOM bought NO YORI] long umbrella-ACC bought  
 ‘Taroo bought a longer umbrella than the one that Hanako bought.’

This is expected: here the standard picks out an individual, rather than a plurality, so there is no problem deriving its length.

#### 5.4 A brief look at Chinese

Xiang (2003) has recently argued that Mandarin Chinese has only individual comparison. Her claims are based primarily on the behavior of quantifiers in comparatives, but a quick look at some of the constructions we have been investigating here shows that Chinese resembles Japanese in at least two other respects. First, complex standards must be relative clauses (Fu 1978):

- (69) a. \*John bi Pete mai shu mai duo changpyan.  
 John BI Pete buy book many record  
 ‘John bought more records than Pete bought books.’  
 b. John mai de changpyan bi Pete mai de shu duo.  
 John buy DE record BI Pete buy book many  
 ‘The records that John bought were more than the books that Pete bought.’
- (70) a. \*John bi Pete neng du mai duo shu.  
 John BI Pete can read buy many book  
 ‘John bought more books than Pete can read.’  
 b. John mai de shu bi Pete neng du de shu duo.  
 John buy DE book BI Pete can read DE book many  
 ‘The books that John bought were more than the books that Pete can read.’
- (71) a. \*Duo jyaushr bi da gauerfu du shu.  
 Many teacher BI play golf read book  
 ‘More teachers read books than play golf.’  
 b. Du shu de jyaushr bi da grfu de jyaushr duo.  
 read book DE teacher BI play golf DE teacher many  
 Teachers who read books are more than teachers who play golf.

Second, there is no adjectival subdeletion (Fu 1978):

- (72) a. \*Jitysu he bi shen kwan.  
 this river BI deep wide  
 ‘This river is wider than it is deep.’  
 b. Jitysu he de kwanda bi shend? da.  
 this river DE width BI depth great  
 ‘The width of this river is greater than its depth.’

Interestingly, Chinese is like Japanese in not having an overt comparative morpheme.

### 5.5 What underlies the individual/degree comparison distinction?

There are at least two potential explanations for why Japanese and English differ in their ability to express both Individual and Degree Comparison:

- *The Degree Abstraction Parameter:* A language {does, does not} have binding of degree variables in the syntax.  
 Beck et al. (2004) are right that this is a real parameter of variation, and that English and Japanese have different settings of it. Both languages have both Individual and Degree Comparison morphology (meanings), but the latter is not used in Japanese because standards are always individual denoting.
- *The Standard Type Parameter:* Languages may differ in whether the comparative morphology selects a standard of type *d* (degree comparison) or of type *e* (individual comparison).

English comparative morphology does both, and so expresses both Individual and Degree Comparison; Japanese comparative morphology does only the latter, and so has only Individual Comparison. Degree abstraction is in principle an option, but

the comparative selects for an individual, so standards must always be individual denoting.

Either option is plausible. Beck et al. 2004 discuss some data that suggests that the first is correct. For example, questions and degree relative-meanings require the use of overt nominals:

- (73) a. How smart is John?  
b. John-wa dore-kurai kasikoi?  
John-top which-degree smart  
'To which degree is John smart?'
- (74) Karera-ga yuka-ni kobosita ryoo-no/dake-no shanpan-o  
They-nom floor-on spilled amount-gen/degree-gen champagne-acc  
nomuni-wa issyoo kakaru darou  
drink-top all-life take will  
'It will take us the rest of our lives to drink the (amount of) champagne that they spilled on the floor.'

Data that would bear on the second would be the status of examples like (75).

- (75) Sterling is heavier than 11 kilos.

According to one informant, such examples are 'highly restricted'. He says (76) is OK, but that's all the data I have so far.

- (76) Bobu-wa iti-zikan-yori-mo nagaku ir-are-nai.  
Bob-TOP 1-hour-YORI-mo long be-can-not  
'Bob cannot be (here/there) for more than one hour.'

It may be relevant that the MP here is a temporal expression, rather than a measure of a more abstract property.

At any rate, no matter what turns out to be the right theoretical explanation of the variation, the more important point is that we have compelling evidence that the Individual/Degree Comparison distinction is a real 'parameter' of variation between languages.

## 6 Concluding remarks

**Implicit vs. explicit comparison** This remains a highly plausible hypothesis about potential cross-linguistic variation in the expression of comparison, but it is not what underlies the differences between Japanese and English.

More generally, if this distinction exists, it cannot be a function of whether a language has comparative degree morphology or not. There may be a one-way correlation, however: if implicit comparison, no degree morphology.

At any rate, we have some tools for probing this distinction, and we still have a set of languages that look like plausible candidates for this sort of analysis (the 'conjoined comparative languages').

**Individual vs. degree comparison** The empirical differences between Japanese and English fall neatly into place if this is the point on which they differ. Given that we also have clear evidence that this distinction is relevant within languages (phrasal vs. clausal comparatives, derived case vs. fixed case comparatives), it appears to be a very strong candidate for a point of parametric variation in the expression of comparison.

The next question is to figure out what is responsible for this distinction. Is it a function of the semantics of the comparative itself ( $\langle\langle d, \langle e, t \rangle \rangle$  vs.  $\langle e, \langle e, t \rangle \rangle$ ), or does it derive from something like the Degree Abstraction Parameter? On either view, does the choice of options correlate with some other property of the comparative, of gradable adjectives, or of other features of the language? In particular, is it an accident that we see the following correlation?

- Japanese (Chinese, ...?) : no comparative morphology : individual comparison
- English (Romance, ...?) : comparative morphology : individual & degree comparison

Finally, does the nature of the standard marker have anything to do with this? Is it an accident that *yorì* is (also) a directional postposition, while *than* is construction-specific? What about Italian *di/che*-type alternations? What about Ablative/*quam* in Latin?

**A follow-up question** What are the implications for the semantic type of gradable adjectives? Arguably, the measure function analysis fits in better with a world in which some languages lack degree abstraction.

**A bigger question** Is there a universal semantics of explicit comparison, and if so, what does it look like? I simply assumed an ‘ordering analysis’, but there are other options on the market.

**An even bigger question** I assumed that the semantics of gradable predicates is universal, and that it crucially makes reference to the semantic type ‘degree’. However, another option to consider, is that languages might differ in a more radical way in the basic semantics of gradable predicates. In particular, maybe some languages don’t make use of the type ‘degree’ at all. Is ‘degrees’ vs. ‘no degrees’ another semantic parameter?

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