

## Points of Comparison

### 1 Introduction

#### 1.1 Basic elements of comparison

(1a-c) illustrate some simple comparatives in English, Russian and Japanese, respectively.

- (1) a. The Mississippi is **longer than** the Danube.  
The Mississippi is long-ER THAN the Danube  
b. Mississippi *dlinnee* Dunaja.  
Mississippi-NOM long-ER Danube-GEN  
c. Mishishippi-gawa-wa Donau-kawa **yori** nagai.  
Mississippi-river-TOP Danube-river THAN long

These examples illustrate the five morphosyntactic components of “particle” comparatives, and also show that there is variation (within and across languages) in morphological marking:

- (2) a. TARGET: *Mississippi*  
b. STANDARD: *Danube*  
c. GRADABLE PREDICATE: *long, dlin, nagai*  
d. PREDICATE-MARKING MORPHOLOGY: *-er, -ee, ∅?*  
e. STANDARD-MARKING MORPHOLOGY: *than, yori*

In degree semantics, comparatives are typically taken to express a relation between target and standard degrees, or, equivalently, a positive difference:

- (3) a.  $length_m > length_d$   
b.  $t > s$   
c.  $COMP \rightsquigarrow \lambda s \lambda t. t > s$
- (4) a.  $length_m = length_d + m$   
b.  $t = s + m$   
c.  $COMP \rightsquigarrow \lambda s \lambda m \lambda t. t = s + m$

A central analytical question is how are the target and standard degrees derived compositionally? The starting point is an analysis of gradable predicates as relations between degrees and individuals; here **m** is that part of the predicate meaning that relates the individual argument to a degree:

- (5) a.  $long \rightsquigarrow \lambda d \lambda x. \mathbf{length}(x) \geq d$   
b.  $GPRED \rightsquigarrow \lambda d \lambda x. \mathbf{m}(x) \geq d$

Target and standard degrees are derived by maximizing over the degree argument. For reasons that will become clear, I define maximization as LEAST UPPER BOUND, deriving the equivalences in (7).

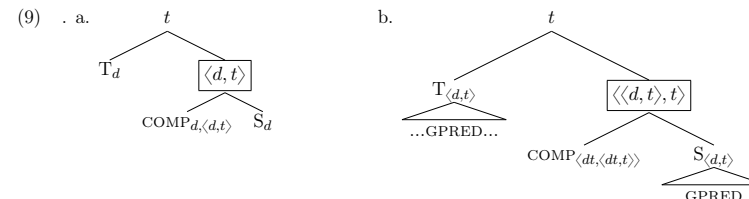
- (6) For  $D \subseteq DEG$ ,  $\max(D) =_{def}$  the unique  $d \in DEG$  such that:  
a.  $\forall d' \in D : d' \leq d$ , and  
b.  $\forall d'' \in DEG : \text{if } \forall d' \in D : d' \leq d'', \text{ then } d \leq d''$
- (7)  $\max(\lambda d. \mathbf{m}(x) \geq d) =$   
 $\max(\lambda d. \mathbf{m}(x) > d) =$   
 $\mathbf{m}(x)$

These basic elements allow for several natural options for lexicalizing comparison in terms of the basic relation COMP in (3c) (or (4c)).

#### 1.2 2-place, standard selecting COMP

COMP composes with STANDARD degree or property, deriving a first- or second-order property of degrees (i.e., a **degree property** or a **degree quantifier**).

- (8)  $COMP \rightsquigarrow$   
a.  $\lambda s \lambda t. t > s$   
b.  $\lambda S \lambda T. \max(T) > \max(S)$
- $t, s \in D_d$   
 $T, S \subseteq D_d$



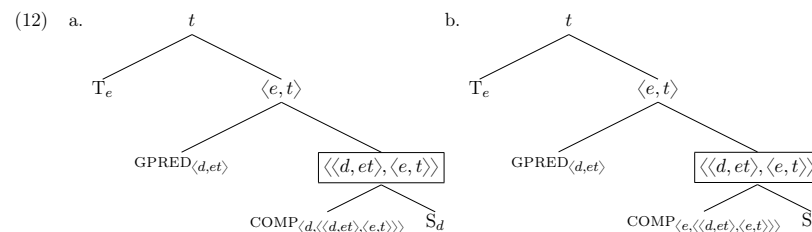
- (10) a. 10 is more than 9.  
b. Rod A is longer than Rod B is.  $\mapsto$   $[[T \text{ Rod A is long } t_t] [\text{more } [S \text{ than } [\text{wh}_s \text{ Rod B is long } t_s]]]_t]$

**NB:** (8b) is the “traditional” analysis of English comparatives, which treats *than* as semantically vacuous (see e.g. Bresnan (1975); Heim (2000); Bhatt and Pancheva (2004); Beck (2011); a.o.).

#### 1.3 3-place, standard selecting COMP

COMP composes with STANDARD degree or individual (or degree property?), deriving function from (GPRED) degree relations to properties of (target) individuals (i.e., a **degree modifier**).

- (11)  $COMP \rightsquigarrow$   
a.  $\lambda s \lambda g \lambda t. \max(\lambda d. g(t)(d)) > s$   
b.  $\lambda s \lambda g \lambda t. \max(\lambda d. g(t)(d)) > \max(\lambda d. g(s)(d))$
- $t \in D_e, g \in D_{\langle d, et \rangle}$   
 $s \in D_d$   
 $s \in D_e$

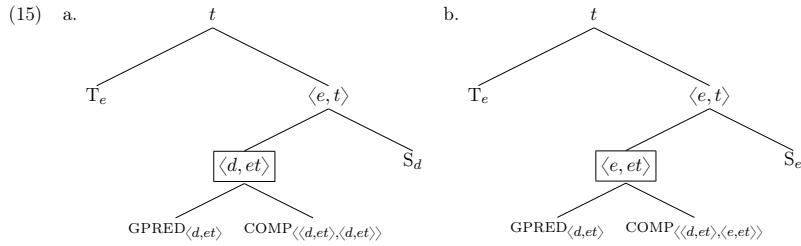


- (13) a. xaver-a shel-i lo yotset im baxur-im she-nemux-im mi-1.80  
friend-FEM of-1SG not go.out.3FEM with guy-PL that-short-PL from-1.80  
'My friend doesn't go out with guys shorter than 1.80m.'  
b. Mishishippi-gawa-wa Donau yori nagai.
- Hebrew*  
*Japanese*

#### 1.4 3-place, predicate selecting COMP

COMP composes with GPRED, mapping it to relation between (standard) degrees or individuals (or properties) and (target) individuals (i.e., a **degree relation** or **individual relation**).

- (14) COMP  $\rightsquigarrow$   $t \in D_e, g \in D_{\langle d, et \rangle}$   
 $s \in D_d$   
 $s \in D_e$
- $\lambda g \lambda s \lambda t. \max(\lambda d. g(t)(d)) > s$
  - $\lambda g \lambda s \lambda t. \max(\lambda d. g(t)(d)) > \max(\lambda d. g(s)(d))$



- (16) a. Mississippi dlinnie 3500 kilometrov.  
Mississippi-NOM long-ER 3500 meters-GEN  
'The Mississippi is longer than 3500 meters.' *Russian*
- b. Mississippi dlinnie Dunaja.  
Mississippi-NOM long-ER Danube-GEN  
'The Mississippi is longer than the Danube.' *Russian*

## 1.5 Overview of the talk

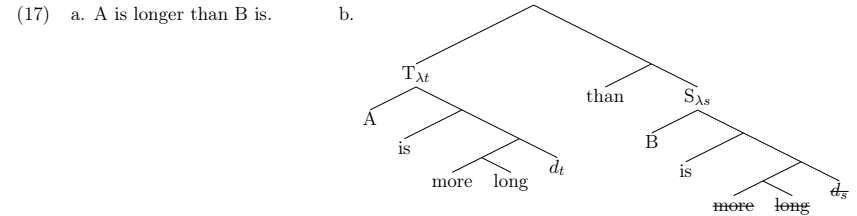
My goal for the rest of the talk is to give a kind of "proof of concept" that this is a good way to think about typological variation in comparatives, and by providing some tests for deciding whether a particular construction is an instance of one of these lexicalization patterns. Specifically, I want to make the case that:

- **English:** both predicate- and standard-marking COMP
  - *than*: 2/3-place, standard-selecting COMP
  - *more*: 3-place predicate-selecting COMP
- **Japanese:** only standard-marking COMP
  - *yoru*: 3-place, standard-selecting COMP
- **Chinese:** only predicate-marking COMP
  - $\emptyset$  (*bijiao*): 3-place predicate-selecting COMP

## 2 English

### 2.1 Comparative Deletion

Assume: 1) *more* lexicalizes 3-place, predicate-selecting COMP, and 2) *than* lexicalizes 2- (or 3-) place, standard-selecting COMP (Alrenga, Kennedy, and Merchant 2012).



- (18) a.  $\llbracket \text{more} \rrbracket = \lambda g \lambda s \lambda t. \max(\lambda d. g(d)(t)) > s$   
 b.  $\llbracket \text{long} \rrbracket = \lambda d' \lambda x. \text{length}(x) \geq d'$   
 c.  $\llbracket \text{more long} \rrbracket = \lambda s \lambda t. \max(\lambda d. \text{length}(t) \geq d) > s$   
 $= \lambda s \lambda t. \text{length}(t) > s$
- (19) a.  $\llbracket T \rrbracket = \lambda d. \text{length}(A) > d$   
 b.  $\llbracket S \rrbracket = \lambda d. \text{length}(B) > d$
- (20) a.  $\llbracket \text{than} \rrbracket = \lambda S \lambda T. \max(T) > \max(S)$   
 b.  $\llbracket \text{than } S \rrbracket = \lambda T. \max(T) > \max(\lambda d. \text{length}(B) > d)$   
 $= \lambda T. \max(T) > \text{length}(B)$   
 c.  $\llbracket T \text{ than } S \rrbracket = \max(\lambda d. \text{length}(A) > d) > \text{length}(B)$   
 $= \text{length}(B) > \text{length}(A)$

### 2.2 The "Extraposition Scope Generalization"

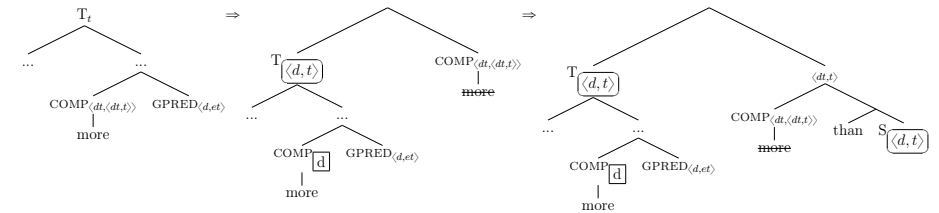
(21) is ambiguous; (22a-b) are not.

- (21) Kim has to publish more papers than Lee.  
 a.  $\#(\text{papers } K \text{ has to publish}) > \#(\text{papers } L \text{ has to publish})$   
 b. *has to be*:  $\#(\text{papers } K \text{ publishes}) > \#(\text{papers } L \text{ publishes})$
- (22) a. Kim has to publish more papers in a top tier journal to get tenure than Lee.  
 b. Kim has to publish more papers than Lee in a top-tier journal to get tenure.

Bhatt and Pancheva (2004) (cf. Williams 1974; Gawron 1995):

- (23) *The Extraposition Scope Generalization (ESG)*  
 When a degree clause  $\beta$  is extraposed from a degree head  $\alpha$ , the scope of  $\alpha$  is *exactly as high* as the merger site of  $\beta$ .

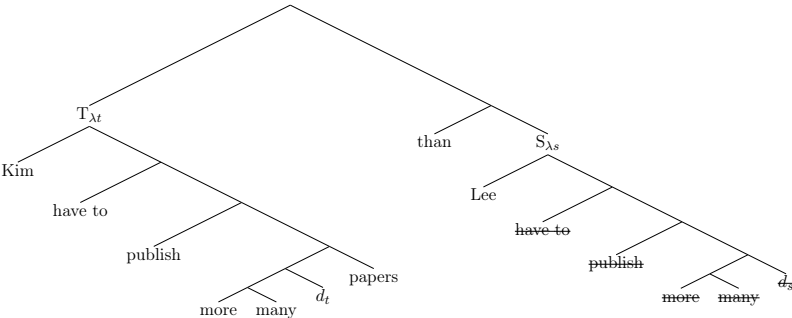
Bhatt and Pancheva show that the ESG follows if we assume 1) a "traditional" 2-place, standard-selecting COMP, and 2) late merger of the STANDARD:



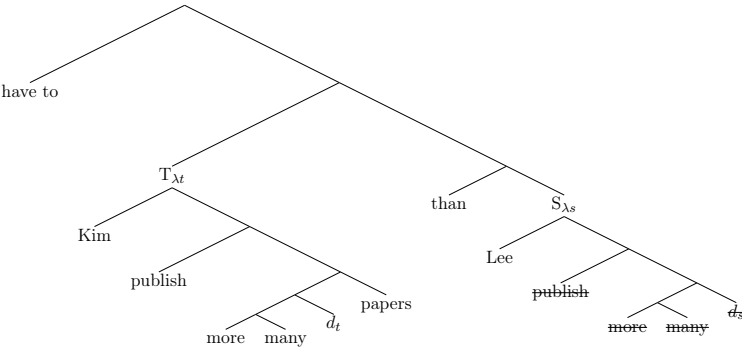
However, Alrenga et al. (2012) show that if we assume that both *more* and *than* lexicalize COMP, as above, the ESG reduces to run-of-the-mill compositionality:

- (21) Kim has to publish more papers than Lee.  
 a.  $\#(\text{papers } K \text{ has to publish}) > \#(\text{papers } L \text{ has to publish})$   
 b. *has to be*:  $\#(\text{papers } K \text{ publishes}) > \#(\text{papers } L \text{ publishes})$

The (a) reading is derived when *than* attaches higher than the modal:

- (24) a. 
- b.  $\max(\lambda d. \Box \exists x [\text{publish}(x)(\mathbf{k}) \wedge \text{papers}(x) \wedge \#(x) > d]) > \max(\lambda d. \Box \exists x [\text{publish}(x)(\mathbf{l}) \wedge \text{papers}(x) \wedge \#(x) > d])$

The (b) reading is derived when *than* attaches below the modal:

- (25) a. 
- b.  $\Box [\max(\lambda d \exists x [\text{publish}(x)(\mathbf{k}) \wedge \text{papers}(x) \wedge \#(x) > d]) > \max(\lambda d \exists x [\text{publish}(x)(\mathbf{l}) \wedge \text{papers}(x) \wedge \#(x) > d])]$

**Upshot:** The scope of comparison is the scope of *than* because *than* encodes comparison!

## 2.3 Issues

### 2.3.1 The relation between *than* and *more*

If *than* lexicalizes COMP, why do we need *more* (cf. Hebrew)? And why no *more* in subcomparatives?

- (26) a. \*This rod is long than that one (is).  
 b. \*This rod is long than that hole is deep.  
 (27) a. \*This rod is longer than that hole is deeper.  
 b. \*This rod is longer than that rod is longer.

*Probably unsatisfying answer for English:* syntactic dependency between *more* and *than*:

- (28) a. \*This rod is longer<sub>[than:√]</sub> than<sub>[more:√]</sub> that hole is deeper<sub>[than:⊥]</sub>.  
 b. \*This rod is longer<sub>[than:√]</sub> than<sub>[more:√]</sub> that hole is longer<sub>[than:⊥]</sub>.  
 (29) a. This rod is longer<sub>[than:√]</sub> than<sub>[more:√]</sub> that hole is deep.  
 b. This rod is longer<sub>[than:√]</sub> than<sub>[more:√]</sub> that rod is longer<sub>[than:⊥]</sub>.

### 2.3.2 The meaning of *more*

Why assume that *more* lexicalizes COMP at all?

- (17) A is longer  $t_t$  [than B is longer  $t_s$ ]  
 a.  $\max(\llbracket T \rrbracket) = \max(\lambda d. \text{length}(\mathbf{A}) > d) = \text{length}(\mathbf{A})$   
 b.  $\max(\llbracket S \rrbracket) = \max(\lambda d. \text{length}(\mathbf{B}) > d) = \text{length}(\mathbf{B})$   
 (17') A is long<sup>[er]</sup>  $t_t$  [than B is long<sup>[er]</sup>  $t_s$ ]  
 a.  $\max(\llbracket T \rrbracket) = \max(\lambda d. \text{length}(\mathbf{A}) \geq d) = \text{length}(\mathbf{A})$   
 b.  $\max(\llbracket S \rrbracket) = \max(\lambda d. \text{length}(\mathbf{B}) \geq d) = \text{length}(\mathbf{B})$

Because we don't need *than* to derive a comparative meaning:

- (30) a. Rod B is long. Rod A is longer.  
 b. Lee published a lot of papers. Kim published more.

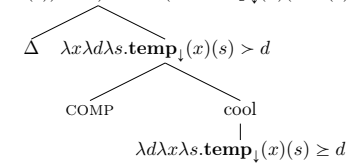
“Degree achievements” vs. “inchoative changes of state” make a similar point:

- (31) a. The bread cooled for five minutes.  $\Rightarrow$  The bread became cool.  
 b. The bread cooled in five minutes.  $\Rightarrow$  The bread became cool.  
 (32) a. The bread became cool#(er) for five minutes.  
 b. The bread became cool(#) in five minutes.

Kennedy and Levin (2008) provide a semantics for English “degree achievements” which suggests a decomposition into adjectival root plus COMP plus MEASURE OF CHANGE  $\Delta$ :

$$(33) \Delta \rightsquigarrow \lambda g_{\langle d, \langle e, st \rangle \rangle} \lambda d \lambda x \lambda e. \max(\lambda d'. g(d')(x)(\text{END}(e))) - \max(\lambda d'. g(d')(x)(\text{BEG}(e))) \geq d$$

$$(34) \lambda d \lambda x \lambda e. \max(\lambda d'. \text{temp}_1(x)(\text{END}(e)) > d') - \max(\lambda d'. \text{temp}_1(x)(\text{BEG}(e)) > d') \geq d$$



But in fact,  $\Delta$  could just as well compose directly with the root:

$$(35) \quad \lambda d \lambda x \lambda e. \max(\lambda d'. \mathbf{temp}_1(x)(\text{END}(e)) \geq d') - \max(\lambda d'. \mathbf{temp}_1(x)(\text{BEG}(e)) \geq d') \geq d$$

$$\begin{array}{c} \Delta \qquad \text{cool} \\ \diagdown \quad \diagup \\ \lambda d \lambda x \lambda s. \mathbf{temp}_1(x)(s) \geq d \end{array}$$

But the situation is different with BECOME. Whether a comparative/atelic interpretation is possible will depend on whether the stem can have an interpretation as a comparative:

$$(36) \quad \text{BECOME} \sim \lambda f_{\langle e, st \rangle} \lambda x \lambda e : \neg f(x)(\text{BEG}(e)). f(x)(\text{END}(e))$$

### 2.3.3 Varieties of standards

Recall that there are two variants of predicate-selecting COMP: one that maps a gradable predicate to a relation between individuals and degrees, which is involved in comparative delation; and another that creates a *comparative relation between individuals*.

$$(14) \quad \text{more} = \text{COMP} \sim$$

$$\begin{array}{ll} \text{a. } \lambda g \lambda s \lambda t. \max(\lambda d. g(t)(d)) > s & \langle \langle d, et \rangle, \langle d, et \rangle \rangle \\ \text{b. } \lambda g \lambda s \lambda t. \max(\lambda d. g(t)(d)) > \max(\lambda d. g(s)(d)) & \langle \langle d, et \rangle, \langle e, et \rangle \rangle \end{array}$$

The latter could directly compose with an individual, if only adjectives in English assigned Case, or if standards could receive inherent Case (Russian?), or if some other expression could assign Case (Mandarin; Grano and Kennedy 2012).

- (37) a. \*The Mississippi is longer the Danube.  
 b. Mississippi dlinec Dunaya.  
 Mississippi-NOM long-COMP Danube-GEN  
 ‘The Mississippi is longer than the Danube.’  
 c. Zhangsan gao Lisi \*(san gongfen).  
 Zhangsan tall Lisi three centimeters  
 ‘Zhangsan is \*(three centimeters) taller than Lisi.’

But when Case is not required, as in “null argument” comparatives like (30a), all is well. In fact, we are in a much better theoretical position with respect to referential commitments than we are if we insist on treating the null argument in (30a) as a degree.

Finally, recall that there were several variants of standard-selecting COMP. The structures we have looked at thus far involve the “two-place” variant in (38a) (= (8b)), which composes with a degree property in “clausal” comparatives:

$$(38) \quad \text{than} = \text{COMP} \sim$$

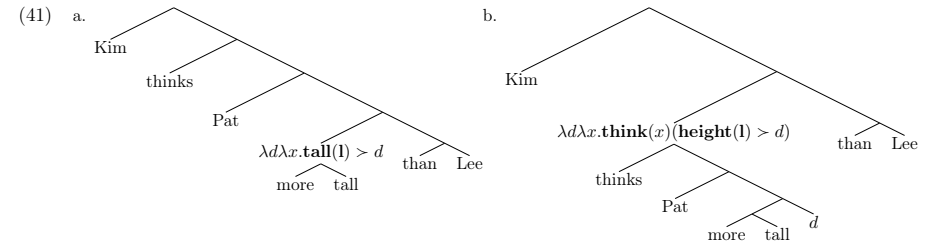
$$\begin{array}{ll} \text{a. } \lambda S \lambda T. \max(T) > \max(S) & \langle dt, \langle dt, t \rangle \rangle \\ \text{b. } \lambda s \lambda g \lambda t. \max(\lambda d. g(t)(d)) > \max(\lambda d. g(s)(d)) & \langle \langle d, et \rangle, \langle e, et \rangle \rangle \end{array}$$

But the “three-place” variants in (38b) (= (11b)) can compose directly with an individual, deriving a “phrasal” comparative. Greek makes a morphological distinction between these forms (Merchant 2009):

- (39) a. I Maria pezi kiθara kalitera ap'oti pezi kiθara o Giannis  
 the Maria plays guitar better than<sub>clausal</sub> plays guitar the Giannis  
 ‘Maria plays guitar better than Giannis plays guitar.’ Greek  
 b. I Maria pezi kiθara kalitera apo ton Giannis.  
 the Maria plays guitar better than<sub>phrasal</sub> the Giannis  
 ‘Maria plays guitar better than Giannis.’ Greek

In phrasal comparatives, the degree relation can be provided directly by the gradable predicate, or can be derived by allowing the standard to take “parasitic scope” under the target (Kennedy 2007).

- (40) Kim thinks Pat is taller than Lee.  
 a. Kim thinks Pat is taller than Lee is.  
 b. Kim thinks Pat is taller than Lee thinks Pat is.



### 2.3.4 Differentials

Differentials are challenging. (42) can’t be parsed as in (43); it must be parsed as in (44).

- (42) A is 2cm longer than B.  
 (43) a. A is 2cm longer [than B is ~~2cm longer~~]  
 b.  $\max(\lambda d. \mathbf{length}(A) = 2\mathbf{cm} + d) > \max(\lambda d. \mathbf{length}(B) = 2\mathbf{cm} + d)$   
 (44) a. A is longer [2cm than B is ~~longer~~]  
 b.  $\max(\lambda d. \mathbf{length}(A) > d) + \max(\lambda d. \mathbf{length}(B) > d) = 2\mathbf{cm}$

I’m not sure what to say about this right now, other than to point out that we already need to say something like this for equatives like *A is half/twice as long as B*.

## 3 Interlude

- Alrenga et al. (2012) provide a proof of concept that COMP could be lexicalized by both predicate-marking and standard-marking morphology.
- This has some nice theoretical results (ESG), but also raises some questions that still lack fully satisfying answers (“agreement,” differentials).
- It *could* be the case that COMP is lexicalized only by standard-marking morphology, and indeed many languages lack a morphological distinction between positive and comparative gradable predicates. *AEBE*, in such languages, “bare” GPREDs should lack comparative meanings.

- It *also* could be the case that COMP is lexicalized only by predicate-marking morphology, and that standard-marking morphology — if present at all — is “purely syntactic,” as in the traditional view of English.<sup>1</sup> *AEBE*, in such languages, comparatives should have surface scope.
- The phrasal/clausal distinction is a potential point of cross-linguistic variation and language-internal morphological distinction, and should be correlated with the morphosyntactic properties of the relevant expressions.

#### 4 Japanese

*Key feature 1: No overt predicate-marking morphology\** In general, only the standard is marked in Japanese, with the postposition *yori*; the gradable predicate is unmarked.

- (45) a. John-wa kasikoi  
 John-TOP smart  
 ‘John is smart.’  
 b. John-wa Mary-yori kasikoi  
 John-TOP Mary-YORI smart  
 ‘John is smarter than Mary.’

\*Except for a few exceptional cases which are based on calques from European languages (Sawada 2013):

- (46) Yori ooku-no nihon-jin-ga Denver-yori New York-ni sun-deiru  
 MORE many-GEN Japan-people-NOM Denver-YORI New York-in live-state  
 ‘More Japanese are living in New York than in Denver.’  
 (47) New York-ni-wa Denver-yori ooku-no nihon-jin-ga sun-deiru  
 New York-in-TOP Denver-YORI many-GEN Japan-people-NOM live-state  
 ‘More Japanese are living in New York than in Denver.’

*Key feature 2: No comparison without standard morphology\** (48) is infelicitous — because false — in a context in which John and Bill are salient, John is clearly taller than Bill, but neither is tall (Hayashishita 2009).

- (48) # John-wa se-ga takai  
 John-TOP back-NOM tall  
 INTENDED: ‘John is taller.’

\*Except when a measure phrase is present, in a context in which the standard is salient, and then *only* a comparative meaning is possible (Sawada and Grano 2011; Kubota 2011; Sawada 2013):

- (49) Kono tana-wa 2-meetoru takai  
 this shelf-TOP 2-meter tall  
 ‘This shelf is 2 meters taller.’  
 \*‘This shelf is 2 meters tall.’  
 (50) Kono roopu-wa 5-inchi nagai  
 this rope-TOP 5-inch long  
 ‘This rope is 5 inches longer.’  
 \*‘This rope is 5 inches long.’

*Key feature 3: No clausal comparatives* At first it looks like Japanese allows clausal comparatives:

<sup>1</sup>Though in fact, the traditional analysis of English, somewhat paradoxically, treats *more* as morphologically predicate-marking but semantically standard-marking.

- (51) John-wa [Mary-ga yatotta]-yori kasikoi hito-o mituketa  
 John-TOP [Mary-NOM hired]-YORI smart person-ACC found  
 ‘John found a smarter person than Mary hired.’  
 (52) John-wa [Mary-ga kitaisita]-yori kasikoi  
 John-TOP [Mary-NOM expected]-YORI smart  
 ‘John is smarter than Mary expected’

However, Sudo (2015) shows that such cases are derived from underlyingly nominal structures:

- (53) John-wa [Mary-ga yatotta hito]-yori kasikoi hito-o mituketa  
 John-TOP [Mary-NOM hired person]-YORI smart person-ACC found  
 ‘John found a smarter person than Mary hired.’  
 (54) John-wa [Mary-ga kitaisita kasikosa]-yori kasikoi  
 John-TOP [Mary-NOM expected smartness]-YORI smart  
 ‘John is smarter than Mary expected’

And Japanese doesn’t allow subcomparatives:

- (55) \*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.’

*Key feature 4: No comparative interpretations for inchoative change of state* Kubota (2010) shows that Japanese scalar roots can have comparative/atelic interpretations when they compose with *-te iku*:

- (56) a. Sanzyup-pun(?-de) oyu-ga same-te it-ta.  
 30-minutes(-in) hot.water-NOM cool-TE IKU-PAST  
 ‘The water cooled for(?in) 30 minutes.’  
 b. Oyu-ga same-te it-ta. Daga, mada same-te i-nai.  
 hot.water-NOM cool-TE IKU-PAST. but yet cool-TE be-NEG  
 ‘The water cooled. But it isn’t cool yet.’

But they have only positive/telic interpretations when they compose directly with PAST:

- (57) a. Sanzyup-pun??(-de) oyu-ga same-ta.  
 30-minutes(-in) hot.water-NOM cool-PAST  
 ‘The water became cool ??for/in 30 minutes.’  
 b. Oyu-ga same-ta. #Daga, mada same-te i-nai.  
 hot.water-NOM cool-PAST but yet cool-TE be-NEG  
 ‘The water became cool. #But it isn’t cool yet.’

**Analysis:** *yori* lexicalizes 3-place standard-selecting COMP (Kennedy 2007; Hayashishita 2009; Kubota 2011); Japanese does not lexicalize predicate-selecting COMP at all, though the equivalent may be available as a marked option (Sawada and Grano 2011; Sawada 2013). *-te iku* is  $\Delta$ , and composes with a non-comparative root, while PAST-marked scalar roots involve BECOME (Kubota 2010).

#### 5 Chinese

*Key feature 1: Possibility of predicate-marking morphology* Prototypical comparatives in Chinese do not include predicate-marking morphology, and even appear not to allow it:

- (58) Zhangsan bi Lisi (\*bijiao) gao  
 Zhangsan BI Lisi (\*more) tall  
 ‘Zhangsan is taller than Lisi.’

- (59) Zhangsan bi Lisi (geng) gao  
 Zhangsan bi Lisi (even-more) tall  
 ‘Zhangsan is even/still taller than Lisi.’

But Liu (2018) argues that predicate-marking morphology is acceptable as long as standard is omitted:

- (60) Zhangsan bijiao gao  
 Zhangsan more tall  
 ‘Zhangsan is taller.’

Liu argues that Chinese has predicate-marking comparative morphology with overt and covert allomorphs, whose form is conditioned by the absence vs. presence of an overt standard. (Cf. what Alrenga et al. (2012) say about English than-clauses!)

*Key feature 2: Comparison without standard morphology* Question-answer pairs (Chao 1968):

- (61) a. Q: Tamen, shei gao (ne)?  
 They who tall (SFP)  
 ‘Which of them is taller?’  
 b. A: Lao Er gao.  
 Lao Er tall  
 ‘Lao Er is taller.’

“Transitive comparatives” (Xiang 2005; Grano and Kennedy 2012):

- (62) Zhangsan gao Lisi \*(san gongfen).  
 Zhangsan tall Lisi three centimeters  
 ‘Zhangsan is \*(three centimeters) taller than Lisi.’  
 (63) Zhangsan zhong Lisi \*(san gongjin)  
 Zhangsan heavy Lisi three kilograms  
 ‘Zhangsan is \*(three kilograms) heavier than Lisi.’

And measure phrases don’t in general force comparative meanings:

- (64) Zhangsan gao liang mi.  
 Zhangsan tall two meters  
 ‘Zhangsan is two meters tall.’ OR ‘Zhangsan is two meters taller.’

*Key feature 3: Surface scope of comparison*

Examples like (65) are ungrammatical on the intended parse. This and the fact that subdelection is impossible suggests that Chinese lacks clausal comparatives.<sup>2</sup>

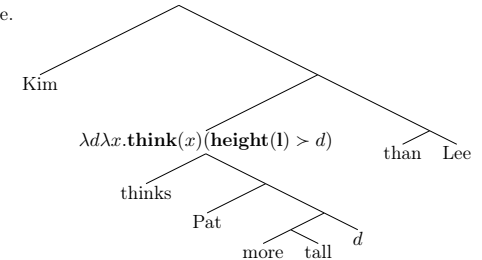
- (65) \* Zhangsan [bi Lisi renwei ta] gao.  
 Zhangsan BI Lisi think he tall  
 INTENDED: ‘Zhangsan is taller than Lisi thinks he is.’  
 (66) \* Wo de yizi gao bi ni de zhuouzi kuan  
 1SG GEN chair tall BI 2SG GEN table wide  
 INTENDED: ‘My chair is taller than your table is wide.’

But (65) is *also* ungrammatical on the parse in (67), under the indicated interpretation.

- (67) \* Zhangsan [bi Lisi] renwei ta gao.  
 Zhangsan BI Lisi think he tall  
 INTENDED: ‘Zhang thinks he’s taller than Lisi thinks he is.’

Recall that in English, the “high” reading of (40) is derived by scoping *than* above the attitude verb:

- (40) Kim thinks Pat is taller than Lee.



And the “in situ” variant is grammatical but unambiguous:

- (68) Zhangsan renwei ta bi Lisi gao.  
 Zhangsan think he BI Lisi tall  
 ‘Zhangsan thinks he’s taller than Lisi is tall’  
 NOT: ‘Zhangsan thinks he’s taller than Lisi thinks he is tall.’

*Key feature 4: Comparative interpretations for inchoative change of state* Zhang (2023) shows that in Mandarin, composition of a scalar root plus PERF gives rise to a comparative inchoative change of state interpretation, but not to an atelic, accomplishment interpretation:

- (69) a. he-dao kuan le, danshi he-dao yiran bu kuan.  
 river-course wide PERF, but river-course still not wide  
 ‘The river course widened, but the river course is still not wide.’  
 b. he-dao kuan le san nian  
 river-course wide PERF three year  
 #‘The river course widened for three years’  
 Actual interpretation: ‘The river course was wide for three years.’

This is in contrast to “verbal” roots, which show the usual telic/atelic ambiguity:

- (70) chuan san xiaoshi (nei) chen le.  
 ship three hour in sink PERF  
 ‘The ship sank for/in three hours.’

**Analysis:** Chinese lexicalizes 3-place, predicate-selecting COMP, and lacks a standard-selecting COMP. The function of *bi* is purely morpho-syntactic. Chinese lacks compositional Δ, but has BECOME.

<sup>2</sup>It’s actually more complicated than this, but I don’t have time to discuss this issue today. See (Lin 2009; Erlewine 2017).

## 6 Conclusion: Some points of comparison

- Lexicalization of COMP
  - standard-marking (Japanese)
  - predicate-marking (Chinese)
  - both (English)
  - neither (Washo?; see Bochnak 2013)
- Syntactic/semantic valence of COMP
  - 2-place (standard-marking COMP only?) vs. 3-place
  - Degree vs. degree property vs. individual
- Interaction with other kinds of derivational morphology
  - $\Delta$
  - BECOME
  - SUP
  - ...
- Other issues
  - (De)composition of GPRED (Francez and Koontz-Garboden 2017)
  - Lexical/functional category inventory
  - “Degree abstraction” (Beck, Oda, and Sugisaki 2004; Beck, Krasikova, Fleischer, Gergel, Hofstetter, Savelsberg, Vanderelst, and Villalta 2009)
  - ...

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