Parameters of Comparison

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Semantic and syntactic universals

What is the relation between universal categories of meaning and specific linguistic forms?
No Variation

- Natural language includes an inventory of universal form-meaning correspondences.
- There is a set of meanings that are associated with the same (possibly quite abstract) structures in all languages.
- Variation in this set arises from highly restricted ‘semantic parameters’.
Transparent Mapping

- Semantics transparently reflects surface syntax.
- Languages may employ different grammatical strategies for expressing the same meaning (entailments).
- Some meanings may not be universally encoded in a special grammatical form.
Universal categories of meaning

In order to investigate this issue, we need to identify some plausible candidates for universal meanings:
Universal categories of meaning

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- Quantification, nominal reference, (a)telicity, modality ...
Universal categories of meaning

- In order to investigate this issue, we need to identify some plausible candidates for universal meanings:
  - Quantification, nominal reference, (a)telicity, modality ...
  - Comparison
The ability to order objects along scalar dimensions is a basic feature of human cognition.

- quantity, size, volume, linear/temporal extent, speed, distance, age, temperature....
- quality, beauty, skill, talent, danger, luck, wealth, happiness....
**Comparison**

- The ability to order objects along scalar dimensions is a basic feature of human cognition.
  - quantity, size, volume, linear/temporal extent, speed, distance, age, temperature....
  - quality, beauty, skill, talent, danger, luck, wealth, happiness....

- All languages have lexical items that relate objects to scalar dimensions (often expressed by the grammatical category ‘adjective’, though not always).
Comparison

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  - quantity, size, volume, linear/temporal extent, speed, distance, age, temperature....
  - quality, beauty, skill, talent, danger, luck, wealth, happiness....

- All languages have lexical items that relate objects to scalar dimensions (often expressed by the grammatical category ‘adjective’, though not always).

- All languages have constructions that can be used to express orderings between objects along scalar dimensions: comparisons of superiority
The current research project

- How do different languages provide for the expression of comparisons of amount and degree?
- To what extent are the structures and meanings employed universal, and to what extent do languages vary in the ways that they express comparison?
- Do differences in the expression of comparison correlate with other (linguistic or nonlinguistic) differences between languages (or their speakers)?
Overview of the talk

1. Variation in the expression of comparison
   - Semantic and syntactic preliminaries
   - The typology of comparison
   - A case study: Comparison in Japanese and English

2. Parameters of comparison
   - Degree vs. individual comparison
   - Explicit vs. implicit comparison

3. Looking ahead
The semantics of gradable predicates

Gradable predicates map objects onto abstract representations of measurement (SCALES) formalized as sets of values (DEGREES) ordered relative to some dimension (height, length, weight, etc.).
Two variants

- GPs denote functions from individuals to degrees:

\[
(1) \quad \llbracket \text{tall} \rrbracket = \text{tall}
\]
Two variants

- GPs denote functions from individuals to degrees:
  
  \[ [\text{tall}] = \text{tall} \]  

- GPs denote relations between individuals and degrees:
  
  \[ [\text{tall}] = \lambda d \lambda x. \text{tall}(x) \succeq d \]
Two variants

- GPs denote functions from individuals to degrees:
  \[(1) \quad \llbracket \text{tall} \rrbracket = \text{tall} \]
- GPs denote relations between individuals and degrees:
  \[(2) \quad \llbracket \text{tall} \rrbracket = \lambda d \lambda x. \text{tall}(x) \succeq d \]
- The choice between these two approaches is significant, but not relevant for today’s talk, so I will assume the former.
Degree morphology

- A gradable predicate does not directly denote a property of individuals (on either view), so we need to turn it into one in order to use it as a predicate or modifier.
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This is the job of degree morphology, which is part of the extended projection of a gradable predicate:

(3) \[ \text{DegP} \]

\[ \text{Deg} \quad \text{AP} \]

\[ \text{A} \]
The positive form

(4) Kim is tall.
The positive form

(4) Kim is tall for a 3 year old.
The positive form

(4) Kim is tall for a gymnast.
The positive form

(4) Kim is tall for a jockey.
The positive form

(4) Kim is *pos* tall.
The positive form

(4) Kim is *pos* tall.

- $\llbracket \text{pos} \rrbracket = \lambda g \lambda x. g(x) \succ s(g)$
- $s$ is a context-sensitive function from gradable adjective denotations to degrees that returns the *standard of comparison* for the adjective in the context of utterance.
The positive form

AP
| tall
| tall
The positive form

\[ \text{Deg} \ 
\lambda g \lambda x . g(x) \ \triangleright \ s(g) \ 
\] \[ \text{AP} \ 
\lambda pos \ 
tall \ 
\]
The positive form

\[
\text{DegP} \\
\lambda x. \text{tall}(x) \succ \text{s(tall)} \\
\text{Deg} \\
\lambda g \lambda x. g(x) \succ \text{s(g)} \text{ tall} \\
\text{pos} \\
\text{tall}
\]
Comparatives

(5) Kim is taller than Lee is.
Comparatives

(5) Kim is more tall than Lee is.

\[ \text{[more]} = \lambda g \lambda d \lambda x. g(x) \succ d \]
Comparatives

AP

tall

tall

Semantic and syntactic preliminaries
The typology of comparison
Comparison in Japanese and English

Introduction
Variation in the expression of comparison
Parameters of comparison
Looking ahead

Chris Kennedy
Parameters of Comparison
Comparatives

\[
\text{Deg} \\
\lambda g \lambda d \lambda x . g(x) \succ d \\
| \\
more \\
\text{AP} \\
tall \\
| \\
tall
\]
Comparatives

\[
\lambda d \lambda x. \text{tall}(x) \succ d
\]

\[
\lambda g \lambda d \lambda x. g(x) \succ d \quad \text{tall}
\]

\[
\lambda g \lambda d \lambda x. g(x) \succ d \quad \text{more}
\]
Comparatives

(5) Kim is more tall than Lee is.

\[ \text{[more]} = \lambda g \lambda d \lambda x. g(x) \succ d \]
Comparatives

(5) Kim is more tall than than $\text{wh}$ Lee is $t$-tall.

- $\text{[more]} = \lambda g \lambda d \lambda x. g(x) \succ d$
- The $\text{than}$-clause involves $\text{wh}$-movement of a (null) degree quantifier plus deletion of redundant material.
(5) Kim is more tall than than \textit{wh} Lee is \textit{tall}.

- $\textit{more} = \lambda g \lambda d \lambda x. g(x) \succ d$
- The \textit{than}-clause involves \textit{wh}-movement of a (null) degree quantifier plus deletion of redundant material.
- Semantically, it is a degree description:
  $\textit{than} \textit{wh} \textit{Lee is \textit{tall}} = \max \{d \mid \textit{tall(lee)} \succeq d\}$
Comparatives

\[
\begin{aligned}
\text{Deg' } \\
\lambda d \lambda x. \text{tall}(x) \succ d \\
\lambda g \lambda d \lambda x. g(x) \succ d \text{ tall} \\
\text{more } \text{tall}
\end{aligned}
\]
Comparatives

\[ \text{Deg'} \]
\[ \lambda d \lambda x. \text{tall}(x) \succ d \]

\[ \text{Deg} \]
\[ \lambda g \lambda d \lambda x. g(x) \succ d \]

\[ \text{AP} \]
\[ \text{more} \]

\[ \text{tall} \]

\[ \text{PP} \]
\[ \text{max}\{d \mid \text{tall}(\text{lee}) \succeq d\} \]

\[ \text{than} \]

\[ \text{CP} \]

\[ \text{wh} \quad \text{Lee is tall} \]
Comparatives

$$\lambda x. \text{tall}(x) \succeq \max\{d \mid \text{tall}(\text{lee}) \succeq d\}$$

DegP

Deg'

PP

Deg

AP

than

CP

$$\lambda d \lambda x. \text{tall}(x) \succeq d \quad \max\{d \mid \text{tall}(\text{lee}) \succeq d\}$$

$$\lambda g \lambda d \lambda x. g(x) \succeq d \quad \text{tall}$$

$$\text{more} \quad \text{tall}$$

$$\text{wh} \quad \text{Lee is} \quad t \quad \text{tall}$$

$$\text{Chris Kennedy}$$

Parameters of Comparison
Summary

Degree morphology turns a measure function (a gradable adjective meaning) into a property of individuals, typically by relating the degree to which the subject possesses the property measured by the adjective to some other degree.
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- In the positive form, this degree is a contextually-determined standard of comparison.
Degree morphology turns a measure function (a gradable adjective meaning) into a property of individuals, typically by relating the degree to which the subject possesses the property measured by the adjective to some other degree.

In the positive form, this degree is a contextually-determined standard of comparison.

In the comparative form, this degree is explicitly provided by the *than*-clause, which denotes a definite description of a (maximal) degree.
The structure of comparison

We now have the following general template for comparison:

(6) MORE A than D
    C-MORPH G-PRED S-MORPH STANDARD
The structure of comparison

- We now have the following general template for comparison:

\[
(6) \quad \text{MORE} \quad \lambda x. m_A(x) \quad \text{A} \quad \text{than} \quad \text{D} \quad \text{C-MORPH} \quad \text{G-PRED} \quad \text{S-MORPH} \quad \text{STANDARD}
\]
The structure of comparison

We now have the following general template for comparison:

(6) \[ \text{MORE} \quad \text{A} \quad \text{than} \quad \text{D} \]
\[ \text{C-MORPH} \quad \text{G-PRED} \quad \text{S-MORPH} \quad \text{STANDARD} \]
\[ \lambda x. m_A(x) \succ \]
The structure of comparison

We now have the following general template for comparison:

\[
\lambda x. m_A(x) > d
\]
The structure of comparison

- We now have the following general template for comparison:

  \[(6) \quad \text{MORE} \quad A \quad \text{than} \quad D \quad \text{C-MORPH} \quad \text{G-PRED} \quad \text{S-MORPH} \quad \text{STANDARD} \quad \lambda x. m_A(x) \succ d\]

- Is this template universal, or do some languages adopt other strategies for expressing comparison?
Investigating variability

- It turns out that this question is not so easy to answer, for two reasons:
Investigating variability

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- The only detailed typological work to date (Ultan 1972, Stassen 1985) is too superficial to address the ‘abstractness’ issue.
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- The only detailed typological work to date (Ultan 1972, Stassen 1985) is too superficial to address the ‘abstractness’ issue.
- There is not a clearly established set of criteria for the classification of a particular construction/form as a ‘comparative’.
A quick typology

- Stassen 1985 identifies three major classes of comparatives, each with a number of subtypes:
  - Particle comparatives
  - Exceed comparatives
  - Conjoined comparatives
A quick typology

- Stassen 1985 identifies three major classes of comparatives, each with a number of subtypes:
  - Particle comparatives
  - Exceed comparatives
  - Conjoined comparatives

- Two factors to watch out for:
  - The standard marker
  - The presence/absence of (overt) comparative morphology
Particle comparatives

Separative comparatives

The standard marker is a morpheme with a meaning roughly equivalent to ‘from’.

(7) Laysat al-nisa 'adcafa min al-rijali
    not the-women weak-COMP from the-men
    Women are not weaker than men.  ARABIC

(8) Sadom-ete hati mananga-i
    horse-from elephant big-pres-3sg
    The elephant is bigger than the horse.  MUNDARI

Amharic, Carib, Guarani, Hindi, Japanese, Manchu, Quechua, Tibetan, Turkish....
Particle comparatives

Allative comparatives

- The standard marker is a morpheme that typically introduces goal phrases (like ‘to’ or ‘for’).

(9) Jazo bras-ox wid-on
    he   big-prt for-me

He is bigger than me.  

(10) Ka’ icham hin s-sataj    naj Pel
    more old   I   him-before he  Pel

I am older than Pel.  

Kanuri, Maasai, Nuer, Tarascan....
Particle comparatives

Locative comparatives

The standard marker is a morpheme with a meaning along the lines of ‘on’.

(11) Ragas-mo in luwa ti-hek surely-you more man on-me

You are certainly more of a man than me. SALINAN

(12) A ka gya ni ma he is big me on

He is bigger than me. MANDINKA

Cebuano, Chuckchee, Miwok, Navajo, Tamil....
Particle comparatives

*Than* comparatives

- The standard of comparison is marked by a construction-specific morpheme.

(13) Istvan magasa-*bb* mint Peter

*Istvan is taller than Peter.*

(14) Enak daging karō iwak

*Math is better than fish.*

Albanian, Basque, English, Finnish, Ilocano, Malagasy, Sranan, Toba Batak...
Exceed comparatives

The standard of comparison is the direct object of a special transitive verb meaning ‘exceed’ or ‘surpass’.

(15)  To bi ni gau.
      He exceed you tall
      *He is taller than you.*  

(16)  O tobi ju u
      he big exceed him
      *He is bigger than him.*
Conjoined comparatives

Comparison is effected by an adversative coordination of two clauses, using either negation or antonymy.

(17) 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

   Dakota, Miskito, Maori, Cayapo, Mangarayi, Sika...

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

   MENOMINI

   Hixkaryana, Mixtec, Shipibo, Yavapai, Motu
What is a comparative?

Is this a real typology? In order to answer this, we need to have some basis for calling something a ‘comparative’.
What is a comparative?

- Is this a real typology? In order to answer this, we need to have some basis for calling something a ‘comparative’.

- Stassen 1985: A construction in natural language counts as a comparative construction if that construction has the semantic function of assigning a graded (non-identical) position on a predicative scale to two (possibly complex) objects.
What is a comparative?

English ‘comparatives’ according to this definition:

(19) Kim is taller than Lee.
    Compared to Lee, Kim is tall.
    Kim exceeds Lee in height.
    Comparatively, Kim is tall and Lee is not.
What is a comparative?

- English ‘comparatives’ according to this definition:
  
  (19) Kim is taller than Lee.
  Compared to Lee, Kim is tall.
  Kim exceeds Lee in height.
  Comparatively, Kim is tall and Lee is not.

- It’s clear that all of these examples can be used to express comparison, but are they all *comparatives*?
The research strategy

- In-depth comparisons of a smaller number of languages, taking account of other potentially related points of variation (functional morphology inventories, grammatical categories, long-distance dependencies, etc.).
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- Detailed examination of syntactic, semantic and pragmatic properties of ‘expressions of comparison’ both within and across languages and development of methods of identification and classification.
The research strategy

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- Detailed examination of syntactic, semantic and pragmatic properties of ‘expressions of comparison’ both within and across languages and development of methods of identification and classification.

- These go together!
Comparatives in Japanese
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Japanese comparatives differ from their English counterparts in a number of ways.

(20) Nihongo-wa doitsgo yori muzukashi.
    ‘Japanese is more difficult than German.’
Comparatives in Japanese

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  (20) Nihongo-wa doitsgo yori muzukashi.  
  Japnese-TOP German YORI difficult  
  ‘Japanese is more difficult than German.’

- No overt comparative morphology (true of 32 of 108 languages in Ultan’s survey).
Comparatives in Japanese

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  Japanese-TOP German YORI difficult
  ‘Japanese is more difficult than German.’

- No overt comparative morphology (true of 32 of 108 languages in Ultan’s survey).

- The standard marker *yori* also has a use meaning ‘from’ (one of Stassen’s ‘separative comparative’ languages).
Extending the analysis

We could account for examples like (20) in terms of the analysis developed for English by assuming that Japanese has a null version of English *more*, and that the standard is an ellipsis structure.
(21)

\[\lambda x. \text{difficult}(x) \succ max \{ d \mid \text{difficult(german)} \succeq d \}\]

\[\text{DegP}\]

\[\lambda d \lambda x. \text{difficult}(x) \succ d\]

\[\text{Deg'}\]

\[\lambda z. \text{difficult}(z) \mid \lambda g \lambda d \lambda x. g(x) \succ d\]

\[\text{Deg}\]

\[\lambda \text{muzukashi}\]

\[\text{MORE}\]

\[\text{PP}\]

\[max \{ d \mid \text{difficult(german)} \succeq d \}\]

\[\text{[wh doitsgo t muzukashi] yori}\]
More substantial differences

There are a number of reasons to believe that this would be wrong, however (Beck, Oda and Sugisaki 2004).

- Interpretive variability
- Adjectival subdeletion
- Negative islands
Interpretive variability

- Attributive comparatives that are structurally identical differ according to the gradable predicate (Ishii 1991):

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

_Taro bought more umbrellas than Hanako bought._

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

_Taro bought a longer umbrella than Hanako bought._
Interpretive variability

Or according to the nature of the predicate inside the comparative clause:

(23) ?*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.

(24) Taroo-wa [Hanako-ga tukutta yori] nagai kasa-o tukutta
     Taroo-TOP [Hanako-ACC made YORI] long umbrella-ACC made
     Taroo made a longer umbrella than Hanako made.
Interpretive variability

A summary of the contrasts (glosses only):

(25) *?[Hanako bought ∅] YORI long umbrella
     [Hanako made ∅] YORI long umbrella
     [Hanako bought ∅] YORI many umbrella
Interpretive variability

- A summary of the contrasts (glosses only):
  
  (25) *?[Hanako bought ∅] YORI long umbrella
       [Hanako made ∅] YORI long umbrella
       [Hanako bought ∅] YORI many umbrella

- The corresponding English examples are all fine:
  
  (26) a longer umbrella than [Hanako bought ∅]
       a longer umbrella than [Hanako made ∅]
       more umbrellas than [Hanako bought ∅]
If comparative clauses are degree abstraction structures, no variability is expected:

(27) a longer umbrella than [Hanako bought ∅]
**Interpretive variability**

If comparative clauses are degree abstraction structures, no variability is expected:

(27) a longer umbrella than
    \[\text{wh}_1\; \text{Hanako bought a} \quad t_1 \quad \text{long} \quad \text{umbrella}\]
If comparative clauses are degree abstraction structures, no variability is expected:

(27) a longer umbrella than

\[ \text{[wh}_{1} \text{Hanako bought a } t_{1} \text{long umbrella}] max\{d \mid \text{Hanako bought an umbrella at least as long as } d\} \]
If comparative clauses are degree abstraction structures, no variability is expected:

\[(27)\] a longer umbrella than
\[\text{[wh} \quad \text{Hanako bought a} \quad t \quad \text{long umbrella]}\]
\[\text{max}\{d \mid \text{Hanako bought an umbrella at least as long as } d\}\]

Why is this example bad in Japanese?
Adjectival subdeletion

So-called ‘subdeletion’ constructions like (28) overtly manifest the structure hypothesized for all comparatives.

(28) The shelf is taller than it is wide.
Adjectival subdeletion

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(28) The shelf is taller than it is *3 feet wide.
Adjectival subdeletion

So-called ‘subdeletion’ constructions like (28) overtly manifest the structure hypothesized for all comparatives.

(28) The shelf is taller than $wh_1$ it is $t_1$ wide.
Adjectival subdeletion

So-called ‘subdeletion’ constructions like (28) overtly manifest the structure hypothesized for all comparatives.

(28) The shelf is taller than \( wh_1 \) it is \( t_1 \) wide.
\[
\text{tall}(\text{shelf}) \succ max\{d \mid \text{wide}(\text{shelf}) \succeq d\}
\]
Adjectival subdeletion

Subdeletion constructions are impossible in Japanese:

(29) *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.]
Adjectival subdeletion

Subdeletion constructions are impossible in Japanese:

(29) *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.

This is unexpected if the yori constituent is a degree abstraction structure, as in English.
Negative islands

Negative expressions are barred from the comparative clause in English:

(30) *Kim bought a more expensive book than nobody did.
Negative islands

This follows from the semantics of the comparative clause:

\[(31)\] Kim bought a more expensive book than nobody did.
Negative islands

- This follows from the semantics of the comparative clause:

(31) Kim bought a more expensive book than [\textit{\text{what}} nobody did buy a \textit{\text{t}}\textit{-}expensive \textit{\text{book}}]
Negative islands

- This follows from the semantics of the comparative clause:

(31) Kim bought a more expensive book than [what nobody did buy a _t_ expensive book]

\[
\text{max}\{d \mid \text{nobody bought a book at least as expensive as } d\}
\]

- There is no degree that satisfies this description.
Negative islands

In Japanese, comparatives that appear to be similar to (30) are acceptable:

(32) John-wa [dare-mo kawa-naaka-tta no] yori
    John-TOP anyone buy-NEG-Past NO YORI
    takai hon-o katta
    expensive book-ACC bought.

*John bought a book that is more expensive than the book that nobody bought.*
Negative islands

In Japanese, comparatives that appear to be similar to (30) are acceptable:

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

However, the translation of (32), and the presence of NO, should be telling us that something else is going on here.
Two kinds of standards

As we have seen, the Japanese facts are unexpected given the assumption that the standard is a degree, and the comparative clause is a degree abstraction structure that denotes a definite description of a degree.
Two kinds of standards

As we have seen, the Japanese facts are unexpected given the assumption that the standard is a degree, and the comparative clause is a degree abstraction structure that denotes a definite description of a degree.

The facts follow if instead the standard in Japanese is always an individual, and the comparative clause is a relative clause that denotes an individual or set of individuals, depending on its structure.
Degree comparison

(33) is the comparative template based on English.

(33) MORE A than D
C-MORPH G-PRED S-MORPH D-STANDARD
\[ \lambda x. m_A(x) \succ d \]

Semantically, the standard has to be a degree in order to evaluate the ordering relation expressed by a comparative of superiority.
Individual comparison

Syntactically, however, it could be an individual, because we can derive a degree by applying the measure function denoted by the gradable predicate to the individual introduced by the standard expression.

(34) MORE A than Y
C-MORPH G-PRED S-MORPH I-STANDARD
Syntactically, however, it could be an individual, because we can derive a degree by applying the measure function denoted by the gradable predicate to the individual introduced by the standard expression.

(34) \[ \text{MORE} \quad A \quad \text{than} \quad Y \]
\[ \text{C-MORPH} \quad \text{G-PRED} \quad \text{S-MORPH} \quad \text{I-STANDARD} \]
\[ \lambda x. m_A(x) \]
Individual comparison

Syntactically, however, it could be an individual, because we can derive a degree by applying the measure function denoted by the gradable predicate to the individual introduced by the standard expression.

\[(34)\quad \text{MORE} \quad \text{A} \quad \text{than} \quad \text{Y} \quad \text{C-MORPH} \quad \text{G-PRED} \quad \text{S-MORPH} \quad \text{I-STANDARD} \quad \lambda x.m_A(x) \succ\]
**Individual comparison**

Syntactically, however, it could be an individual, because we can derive a degree by applying the measure function denoted by the gradable predicate to the individual introduced by the standard expression.

\[(34) \quad \text{MORE} \quad C\text{-MORPH} \quad A \quad \text{than} \quad Y \quad \text{G-PRED} \quad S\text{-MORPH} \quad \text{I-STANDARD} \quad \lambda x. m_A(x) \succ m_A(y)\]
Syntactically, however, it could be an individual, because we can derive a degree by applying the measure function denoted by the gradable predicate to the individual introduced by the standard expression.

(34) MORE A than Y
C-MORPH G-PRED S-MORPH I-STANDARD
\[ \lambda x . m_A(x) \succ m_A(y) \]

Before we see whether this analysis makes sense theoretically, let’s see how it accounts for the data.
Negative islands

- The YORI-clause is a regular relative clause, as the translation and nominalizer NO indicate.

(35) 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.

- Since there is no interaction with a maximality operator, there is no negative island effect.
Adjectival subdeletion

- Adjectival subdeletion constructions necessarily involve degree standards:

\[(36) \text{ The shelf is taller than } [\textit{wh}_1 \text{ it is } t_1 \text{ wide}] \]
\[
\text{tall(\textit{shelf})} \succ \max\{d \mid \text{wide(\textit{shelf})} \succeq d\}
\]

- If standards in Japanese are individuals these are correctly predicted to be bad.
Nominal ‘subdeletion’

- Superficially similar constructions with nominal comparatives are OK:

(37) Hanako-wa [Taroo-ga ronbun-o kaita (no)]
Hanako-TOP [Taroo-NOM paper-ACC wrote (NO)]
yori takusan hon-o kaita
YORI many book-ACC wrote

Hanako wrote more books than Taroo wrote papers.
Nominal ‘subdeletion’

These can be accommodated by analyzing the *yori*-constituent as an internally-headed relative clause:

(37) Hanako-wa [Taroo-ga ronbun-o kaita (no)]
Hanako-TOP [Taroo-NOM paper-ACC wrote (NO)]
yori takusan hon-o kaita
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(38) many(                    )
many(                    )
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(37)  
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*Hanako wrote more books than Taroo wrote papers.*

(38)  
many({*x | x is a book that Hanako wrote*})  
many(  

Nominal ‘subdeletion’

These can be accommodated by analyzing the *yori*-constituent as an internally-headed relative clause:

(37)  Hanako-wa [Taro-o-ga ronbun-o kaita (no)]
     Hanako-TOP [Taro-o-NOM paper-ACC wrote (NO)]
     *yori* *takusan hon-o*  *kaita*
     YORI many book-ACC wrote
     *Hanako wrote more books than Taro wrote papers.*

(38)  \( \text{many} \{ \{x \mid x \text{ is a book that Hanako wrote} \} \} \)
     \( \text{many} \{ \{y \mid y \text{ is a paper that Taro wrote} \} \} \)
Nominal ‘subdeletion’

These can be accommodated by analyzing the *yori*-constituent as an internally-headed relative clause:

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Hanako-TOP [Taroo-NOM paper-ACC wrote (NO)]
*yori* takusan hon-o kaita
YORI many book-ACC wrote
*Hanako* wrote *more books than Taroo wrote papers.*

(38)  *many*({*x* | *x* is a book that Hanako wrote}) ⊃
*many*({*y* | *y* is a paper that Taroo wrote})
Interpretive variability

more umbrellas vs. a longer umbrella

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

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

- Assume that the *yori*-constituent is a relative clause whose head has been deleted under identity with the external NP:

\[(41) \quad [S \ V \ NP] \text{ yori A NP}\]
Interpretive variability

1. Assume that the *yori*-constituent is a relative clause whose head has been deleted under identity with the external NP:

   (41) \[ [S \ V \ NP] \ yori \ A \ NP \]

   \( \{y \mid y \text{ is an NP that } S \text{ Ved} \} \)

2. Assume that such relative clauses denote (maximal) plural objects (cf. Beck et al. 2004).
Interpretive variability

- Assume that the yori-constituent is a relative clause whose head has been deleted under identity with the external NP:

\[
(41) \quad \begin{array}{c}
[S \ V \ NP] \ yori \ A \ NP \\
\lambda x. m_A(x) \succ m_A(\{y \mid y \text{ is an NP that } S \text{ Ved}\})
\end{array}
\]

- Assume that such relative clauses denote (maximal) plural objects (cf. Beck et al. 2004).

- By hypothesis, they must combine with the gradable predicate to derive the standard degree.
Interpretive variability

No problem when the gradable predicate is *takusan* ‘many’, which is a function from pluralities to their cardinalities (Hackl 2000).

(42)  [H-ga katta kasa] yori takusan
[Hanako bought umbrella] YORI many
more (umbrellas) than Hanako bought

(43)  many($\{x \mid x$ is an umbrella that Hanako bought$\}$)
Interpretive variability

A problem when the predicate is *nagai* ‘long’, which is a function from atomic objects to lengths.

(44) \[
[H\text{-}ga \ \text{katta \ } kasa] \ \text{yori nagai} \\
[H\text{-}NOM bought \ \text{umbrella}] \ \text{YORI long} \\
(\text{a) longer (umbrella) than Hanako bought}
\]

(45) \[\#\text{long} \{x \mid x \text{ is an umbrella that Hanako bought}\}\]
Interpretive variability

- A problem when the predicate is *nagai* ‘long’, which is a function from atomic objects to lengths.

(44) \[ [\text{H-ga katta kasa}] \text{ yori nagai} \]
\[ [\text{H-NOM bought umbrella}] \text{ YORI long} \]
**(a) longer (umbrella) than Hanako bought**

(45) \#long(\{x \mid x \text{ is an umbrella that Hanako bought}\})

- Compare *the long umbrellas* with *the many umbrellas*: the former has only a distributive interpretation.
Interpretive variability

*make vs. buy*

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

(46) Taroo-wa [Hanako-ga tukutta] yori nagai
   Taroo-TOP [Hanako-ACC made] YORI long
   kasa-o tukutta
   umbrella-ACC made
   Taroo made a longer umbrella than Hanako made.
Interpretive variability

- When we change the embedded verb to *tukutta* ‘make’, the relative clause can denote the plurality of incremental objects that measure out an umbrella-making event.

(47) 
\[ [H\text{-ga} \ \text{tukutta} \ kasa] \ \text{yori} \ \text{nagai} \ \\
[\text{H-NOM} \ \text{made} \ \text{umbrella}] \ \text{YORI} \ \text{long} \ \\
(a) \ \text{longer (umbrella) than Hanako made} \]

(48) \text{long}(\{x \mid x \ \text{a THEME of umbrella-making by } H\})
When we change the embedded verb to *tukutta* ‘make’, the relative clause can denote the plurality of incremental objects that measure out an umbrella-making event.

(47)  
[H-ga tukutta kasa] yori nagai  
[H-NOM made umbrella] YORI long  
(a) longer (umbrella) than Hanako made

(48)  
long(\{x | x a THEME of umbrella-making by H\})

Such a plurality corresponds to one atomic object, so it can be measured by *long*. 

Chris Kennedy

Parameters of Comparison
Interpretive variability

- The analysis predicts that the bad examples should be OK if context makes it clear that Hanako bought just one umbrella; this is correct (Beck et al.).
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Definiteness of NO also saves the bad examples:

(49) Taroo-wa [Hanako-ga katta no] yori nagai kasa-o katta. Taroo bought a longer umbrella than the one that Hanako bought.
Degree vs. individual comparison

- The differences between English and Japanese follow from the hypothesis that English has **degree comparison** and Japanese has **individual comparison**.

  - **Degree comparison**
    \[ \lambda d \lambda x. g(x) \succ d \]
  
  - **Individual comparison**
    \[ \lambda y \lambda x. g(x) \succ g(y) \]
Degree vs. individual comparison

- The differences between English and Japanese follow from the hypothesis that English has degree comparison and Japanese has individual comparison.
  - **Degree comparison**
    \[ \lambda d \lambda x. g(x) \succ d \]
  - **Individual comparison**
    \[ \lambda y \lambda x. g(x) \succ g(y) \]
- Is there additional evidence for this distinction?
Phrasal and clausal comparatives

In fact, English and similar languages must have both individual and degree comparison to account for the difference between ‘phrasal’ and ‘clausal’ comparatives (Hankamer 1973).

(50) Who are you faster than t (*is)?
(51) No one is taller than himself (*is).
Fixed- and derived-case comparatives

Likewise, we need this distinction to handle the distinction between ‘fixed case’ and ‘derived case’ comparatives in languages like Russian:

(52) Dmitri starše Ivana.
Dmitri-NOM older Ivan-GEN
*Dmitri is older than Ivan.*

(53) Dmitri starše čem Ivan.
Dmitri-NOM older than Ivan-NOM
*Dmitri is older than Ivan.*
A parameter of comparison?

The facts suggest at least that some languages (English, Romance, Slavic...) have both individual and degree comparison, while others (Japanese, Chinese ...?) have only the former.
A parameter of comparison?

- The facts suggest at least that some languages (English, Romance, Slavic...) have both individual and degree comparison, while others (Japanese, Chinese ...?) have only the former.

- However, before we hypothesize about what might underlie such a distinction, we need to ask whether some other point of variation could equally well explain the facts.
Beck, Oda and Sugisaki 2004

Beck et al. derive the differences between Japanese and English in terms of two ‘parameters’:

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

  - English: [compositional, +DAP]
  - Japanese: [contextual, -DAP]
Compositional vs. contextual comparison

In a contextual comparison language, the standard constituent provides a basis for figuring out the standard degree: it is a kind of ‘frame setter’:

(54)  Compared to Lee, Kim is taller.
Compositional vs. contextual comparison

In a contextual comparison language, the standard constituent provides a basis for figuring out the standard degree: it is a kind of ‘frame setter’:

(54) Compared to Lee, Kim is taller.

This is supposed to derive the variability effects:

(55) Compared to the set of umbrellas that Hanako bought, Taroo bought a longer umbrella.
The Degree Abstraction Parameter

The DAP is designed to rule out adjectival subdeletion: only languages that are +DAP allow it.
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  (56) Compared to how wide the door is, the shelf is taller.

- **NB:** This could play a role in the distinction between individual and degree comparison, though we would like to derive it from some other principle — more later.
The expected typology

The analysis predicts four language-types:

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<tr>
<th></th>
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The crucial factor is whether or not the standard clause can be a degree description (+/-DAP)

This is individual vs. degree comparison!
Summary

- The DAP may be a real point of variation, and may even underlie the individual/degree comparison distinction.

- Beck et al’s notion of ‘contextual’ comparison doesn’t do any real work for us, but it does suggest a more extreme — and highly plausible — point of potential variation between languages: implicit vs. explicit comparison (cf. Sapir 1944).
Explicit vs. Implicit comparison

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 $g$. 
Explicit vs. Implicit comparison

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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 $y$. 
The intuition is that some languages might lack explicit comparison morphology (and perhaps degree morphology entirely), and so rely instead on the inherent context-sensitivity of the positive form to express comparison.
The intuition is that some languages might lack explicit comparison morphology (and perhaps degree morphology entirely), and so rely instead on the inherent context-sensitivity of the positive form to express comparison.

Two features of the observed typological facts suggest this is not a crazy idea:

- The frequent absence of (overt) comparative morphology
- Conjoined comparative languages
A semantics for implicit comparison

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:

(57) Kim is (pos) tall compared to Lee.

(58) $\llbracket \text{compared to } y\rrbracket(\llbracket \text{tall} \rrbracket)$ is true of $x$ in a context $c$ iff $\llbracket \text{tall} \rrbracket$ is true of $x$ in any context $c'$ just like $c$ except that the domain of $\llbracket \text{tall} \rrbracket$ includes only $x$ and $y$. 
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  (59) $\lbrack\text{tall}\rbrack = \lambda x.\text{tall}(x) \succ s(\text{tall})$

- Assuming that the standard always induces a non-trivial partitioning on the domain, this will entail that $x$ is taller than $y$ in $c$.  

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Chris Kennedy  Parameters of Comparison
Predictions

Assuming the strong position that implicit comparison arises from the absence of degree morphology, we get:

- No degree abstraction (no subdeletion).
- Individual comparison (variability effects).
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  - Individual comparison (variability effects).

- Japanese could be an implicit comparison language.

- How can we tell?
Crisp judgments

- Explicit comparison allows fine-grained distinctions in degree; implicit comparison does not.
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**CONTEXT**: Kim is 5’ 6” tall; Lee is 5’ 5 3/4” tall

(60) Kim is taller than Lee.
(61) ??Kim is tall compared to Lee.
Crisp judgments

- Explicit comparison allows fine-grained distinctions in degree; implicit comparison does not.

**CONTEXT:** Kim is 5’ 6” tall; Lee is 5’ 5 3/4” tall

(60) Kim is taller than Lee.

(61) **??**Kim is tall compared to Lee.

- The oddity of (61) follows from the semantics of the positive form (‘boundarylessness’).
Negative inferences

- Implicit comparison generates a negative inference to the positive form; explicit comparison does not.
Negative inferences

- Implicit comparison generates a negative inference to the positive form; explicit comparison does not.

**CONTEXT:** Kim is 7’ tall; Lee is 6’ 6” tall

(62) Kim is taller than Lee.

(63) ??Kim is tall compared to Lee.
Negative inferences

- Implicit comparison generates a negative inference to the positive form; explicit comparison does not.

**CONTEXT:** Kim is 7’ tall; Lee is 6’ 6” tall

(62) Kim is taller than Lee.

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- Use of *compared to* implicates that the simple positive is false (Sawada 2007).
An adjective like *open* is true of an object if it has some degree of positive aperature.
Minimum standard adjectives

- An adjective like *open* is true of an object if it has some degree of positive aperature.

  (64) This door is open more than that one.
  (65) ??This door is open compared to that one.

- Related to the negative inferences effect.
Japanese: Crisp judgments

CONTEXT: Kim is 5’ 6” tall; Lee is 5’ 5 3/4” tall

(66) Kim-wa Lee yori se-ga takai.
Kim-NOM Lee YORI back-NOM tall
Kim is taller than Lee.

(67) ??Kim-wa Lee-to kuraberu to se-ga
Kim-NOM Lee-WITH compare COMP back-NOM
takai.
tall
Kim is tall compared to Lee.
**Japanese: Negative inferences**

**CONTEXT:** Kim is 7’ tall; Lee is 6’ 6” tall

(68) Kim-wa Lee yori se-ga takai.
Kim-NOM Lee YORI back-NOM tall
*Kim is taller than Lee.*

(69) ??Kim-wa Lee-to kuraberu to se-ga
Kim-NOM Lee-WITH compare COMP back-NOM
takai.
tall
*Kim is tall compared to Lee.*
Japanese: Minimum standard adjectives

(70) Kono mon yori ano mon-wa aite-iru.
this gate YORI that gate-NOM open-RESULT
That gate is open more than this one.

(71) ??Kono mon-ni kurabe-tara ano mon-wa
this gate-DAT compare-COND that gate-NOM
aite-iru.
open-RESULT
Compared to this gate, that one is open.
Summary

- Both Japanese *yori*-constructions and English *more than* constructions involve the semantics of explicit comparison.
- The differences between the two languages must therefore be due to the individual/degree comparison distinction, not to the explicit/implicit distinction.
Explicit vs. implicit comparison

- This remains a plausible point of cross-linguistic variation in the expression of comparison.
Explicit vs. implicit comparison

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- All languages have positive form gradable predicates; some languages may lack specialized morphology for explicit comparison.
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- All languages have positive form gradable predicates; some languages may lack specialized morphology for explicit comparison.
- We now have some analytical tools for investigating whether this distinction is a real one:
  - Crisp judgments, negative inferences, minimum standard adjectives
Explicit vs. implicit comparison

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- We now have some analytical tools for investigating whether this distinction is a real one:
  - Crisp judgments, negative inferences, minimum standard adjectives
  - Differential measures, other pragmatic effects
Individual vs. degree comparison

This appears to be a real point of cross-linguistic variation, but what is responsible for this distinction?
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Indi\v{c}ual vs. degree comparison

This appears to be a real point of cross-linguistic variation, but what is responsible for this distinction?

- The Degree Abstraction Parameter, possibly itself due to differences in functional morphology inventories?
- The syntax/semantics of the relevant morphology?
  - more vs.  \( \emptyset \)
  - than vs. \( yori \)
  - more vs. \( yori \)
Individual vs. degree comparison

- This appears to be a real point of cross-linguistic variation, but what is responsible for this distinction?
  - The Degree Abstraction Parameter, possibly itself due to differences in functional morphology inventories?
  - The syntax/semantics of the relevant morphology?
    - more vs. ∅
    - than vs. yori
    - more vs. yori

- We need to examine more languages from more of Stassen’s categories in more detail to answer these questions!
Comparison and Universal Grammar

- Clearly, if some languages have only implicit comparison the ‘No Variation’ hypothesis cannot be maintained.
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- Even the individual/degree comparison distinction presents a potential challenge, depending on what underlies it:
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  - UG may provide for both options, but some languages have only one for independent reasons (e.g., the DAP).
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  - Languages may vary in the kinds of comparisons they permit: individuals only, or individuals and degrees.
Comparison and Universal Grammar

- Clearly, if some languages have only implicit comparison the ‘No Variation’ hypothesis cannot be maintained.
- Even the individual/degree comparison distinction presents a potential challenge, depending on what underlies it:
  - UG may provide for both options, but some languages have only one for independent reasons (e.g., the DAP).
  - Languages may vary in the kinds of comparisons they permit: individuals only, or individuals and degrees.
- Alternatively, the insights we gain from studying comparatives in new languages may result in revisions to our ‘English-centric’ starting point that result in a universal characterization of the logical form of comparison.
Parameters of Comparison

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March 30, 2007
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