Cross-linguistic differences in degrees (based on Bochnak 2013 and Hohaus & Bochnak 2019)

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Introduction

Degree arguments in adjectives.

(1) $[\![\textit{tall}]\!] = \lambda d \lambda x.\textbf{tall}(x) \succeq d$

Do all languages have degrees, things of type *d*? What would that look like?

- Adjectives would be lexicalized as context-sensitive vague predicates.
- Directly encode evaluativity.

(2) $[\![\textit{tall}]\!]^c = \lambda x.\text{tall}(x) \text{ in } c$

Other properties:

- No measure phrases (*five feet tall*, *ten centimeters long*)
- No comparative morpheme that compares degrees.
- No effects of scale structure (scale direct, scale boundedness)
- Norm-relatedness directly in predicate; thus, should find norm-relatedness even in comparative contexts.

Bochnak: Washo is such a language.[1] All these predictions hold for Washo.

Note about Washo:

- No distinct adjective category.
- Scalar concepts realized as verbs (see *-i* imperfective suffix in (3)).
- Sometimes surface as nominalizations (4).

(3) mé:hu ʔil-káykay-iʔ-i
boy ATTR-tall-ATTR-IPFV
'The boy is tall.'

(4) mé:hu de-ʔil-káykay-iʔ k'-éʔ-i
boy NMLZ-ATTR-tall-ATTR 3-COP-IPFV
'The boy is tall.'

Measure phrases in Washo

Washo has no measure phrases. Only thing like a measure phrases are phrases that name a number of years.

[1] Washo is an endangered Native American language, spoken by a couple communities on the border between the US states of California and Nevada.

(5) hélmeʔ múʔc'im de-w-gális-iʔ k'-éʔ-i
three ten NMLZ-STATIC-winter-ATTR 3-COP-IPFV
'He is thirty years old.'

These aren't modifying scalar predicates, like *Mile* 'old'.

(6) *hélmeʔ múʔc'im de-w-gális-iʔ Míle-yi
three ten NMLZ-STATIC-winter-ATTR old-IPFV
Intended: 'He is thirty years old.'

Two types of comparison

Within a language, and across languages, two types of comparison (Kennedy 2007, Sapir 1944)

(7) a. *Explicit comparison*: establishes an ordering relation between objects x and y with respect to a gradable property g using a morphosyntactic form whose conventional meaning has the consequence that the degree to which x is g exceeds the degree to which y is g.
b. *Implicit comparison*: establishes an ordering between objects x and y with respect to a gradable property g using the positive form by manipulating the context in such a way that the positive form is true of x and false of y.

Explicit comparison makes use of dedicated morphology for comparison (cf. English *-er/more*). Clausal and phrasal comparatives.

(8) $[\![\text{-}er_1]\!] = \lambda y \lambda G_{\langle d,et\rangle} \lambda x.\max\{d' | G(d')(x) = 1\} > \max\{d'' | G(d'')(y) = 1\}$

(9) $[\![\text{-}er_2]\!] = \lambda D1_{\langle d,t\rangle} \lambda D2_{\langle d,t\rangle}.\max(D2) > \max(D1)$

(10) a. John is taller than Mary.
b. $\max\{d' | [\textbf{tall}(j) = d'] = 1\} > \max\{d'' | [\textbf{tall}(m) = d''] = 1\}$

Implicit comparison: no special morphology. See, for instance, the English *compared to* phrase.

(11) Compared to Mary, John is tall.

- "According to Kennedy (2007a), (11) is true in a context c if and only if the positive form tall is true of John in any context c' that is just like c except that the domain of individuals includes only John and Mary." (Bochnak 2013:83)
- Function of "compared to" phrase is to limit domain to only two individuals.

Washo seems to only have implicit comparison, which is what we expect if it doesn't have operations that quantify over degrees.

Comparison strategies in Washo

Primary mode of comparison in Washo: conjoined comparison.

- Conjoin two antonymous clauses.
- Not marked with overt comparative morphology.

(12) t'é:liwhu de-ʔil-káykay-iʔ k'-éʔ-i šáwlamhu
man NMLZ-ATTR-tall-ATTR 3-COP-IPFV girl
de-ʔil-káykay-iʔ-é:s k'-éʔ-aʔ-š
NMLZ-ATTR-tall-ATTR-NEG 3-COP-AOR-SR
'The man is taller than the girl.' (lit: 'The man is tall, the girl is not tall.')

Note that this is a pretty common comparative strategy cross-linguistically. 26 of 110 languages in Stassen's (1985) study used this as a primary or secondary means of comparison. (Examples from Hohaus & Bochnak 2019.)

(2) Examples of the conjoined comparative construction

Motu

(2a) *Mary-na lata to Frank-na kwadoḡi.*
Mary-TOP tall but Frank-TOP short
"Mary is tall but Frank is short.
[Beck et al. 2009, p. 20, (66)]

Washo

(2b) *wí:diʔ ʔitmáɪa de-l-káykay-iʔ k'-éʔ-i wí:diʔ*
this ladder NMLZ-ATTR-tall-ATTR 3-COP-IPFV this
de-l-káykay-iʔ-é:s k'-áʔ-a-š
NMLZ-ATTR-tall-ATTR-NEG 3-COP-AOR-SR
'This ladder is tall, that one is not tall.'
[Bochnak 2015b, p. 12, (21)]

Warlpiri

(2c) *Nyirrpi=ji nguru yukanti. Yurntumu=ju wiri-jarlu.*
Nyirrpi=TOP country small Yuendumu=TOP big-AUG
'Nyirrpi is small. Yuendumu is big.'
[Bowler 2016, p. 4, (15)]

Samoan

(2d) *E matua Ioane 'ae la'itiiti Malia.*
TAM old John but young Mary
'John is old, but Mary is young.'
[Hohaus 2018, p. 112, (28)]

How can we be sure that what we're seeing is implicit comparison, and not just explicit comparison with silent morphology? Three tests from Kennedy 2007.

- Crisp judgement contexts
- Minimum standard predicates
- No differential measure phrases (*a little bit, slightly*).

Crisp judgement contexts: since the adjectives are vague predicates, with small differences in degree in a crisp judgement context, neither object should stand out with respect to the other in the context, with an implicit comparative. This holds in (13).

With respect to this test, Washo conjoined comparisons pattern like implicit comparisons. Conjoined comparisons are infelicitous in contexts such as (13).

(13) a. Context: comparing two ladders that are very close in height
b. ??wíːdiʔ t'éweʔ dewgíʔiš k'-éʔ-i wíːdiʔ t'éweʔ-ŋa dewgíʔiš-éːs
this much height 3-COP-IPFV this much-NC height-NEG
k'-éʔ-aʔ-š
3-COP-AOR-SR
Intended: 'This one is taller than that one.'
(lit: 'This one is tall, this one is not tall.')

Minimum standard predicates: predicates like *bent* and *wet* have standards set at the bottom of their respective scales. These standards are not context-dependent. Implicit comparison expected to be infelicitous with these predicates. This is borne out.

(15) a. Context: comparing two bent rods, one more bent than the other (though not a crisp judgement context)
b. ??wíːdiʔ ʔil-k'únk'un-iʔ-aʔ-š wíːdiʔ ʔil-šíːšib-iʔ-i
this ATTR-bent-ATTR-AOR-SR this ATTR-straight-ATTR-IPFV
Intended: 'This one is more bent than that one.'
(lit: 'This one is bent, that one is straight.')

What about modifiers?

Modifiers are sensitive to scale structure.

- *very tall, *very closed*
- **completely tall, completely closed*

These contrasts due to scale structure of adjectives, which is represented using degrees. Therefore, if there are no degrees in a language, we expect differences in how degree modifiers work in languages like Washo.

First, Washo does have an intensifier like *very*, but it is probably better translated as *really*.

(19) de-ʔil-káykay-iʔ šému
NMLZ-ATTR-tall-ATTR ŠEMU
'very tall'
(relative standard predicate)

(20) ʔil-šíːšib-iʔ šému
ATTR-straight-ATTR ŠEMU
'really straight'
(maximum standard predicate)

(21) ʔil-k'únk'un-iʔ šému
ATTR-bent-ATTR ŠEMU
'really bent'
(minimum standard predicate)

Cross-categorial, which is surprising if it is a true degree modifier.[2]

(22) lák'aʔ l-á:du yáha šému-yi
one 1.POSS-hand hurt ŠEMU-IPFV
'One of my hands really hurts.'

(23) lélɨm šému
night ŠEMU
'middle of the night'/'really dark'

(24) t'é:liwhu dókto šému k'-éʔ-i
man doctor ŠEMU 3-COP-IPFV
'The man is a real doctor.'

(25) dubáldiʔ šému hé:š ʔ-íʔiw-i
five ŠEMU Q 3-eat-IPFV
'Did he eat exactly five (apples)?'

Not the same effect all the time.

- Minimum and relative standard: boost the standard
- Precisifying effect (20), (25).
- Prototypicality modifier: (23), (24)

Proposes that it has a non-degree semantics, in contrast to *very* and *completely*. Has an epistemic or evidential contribution.

(26) $[\![\textit{šemu}]\!] = \lambda P \lambda x \lambda w . P(x) \text{ in } w \ \& \ \forall w' \in \text{Dox}_{sp}(w) : P(x) \text{ in } w'$

> Under this analysis, *x is P-šemu* means that *x* falls under the extension of *P* in the actual world and in all worlds consistent with speaker's beliefs. As I now show, this analysis is general enough to capture the wide distribution of *šemu*, as well as its somewhat variable meaning across contexts, including apparent degree effects in certain cases. (pg. 87)

Obligatory norm-relatedness

Degree analysis: covert POS morpheme saturates degree argument of an adjective. Here's one of a million versions:

(27) $[\![\text{POS}]\!] = \lambda G_{\langle d,et \rangle} \lambda x . \max\{d | G(x)(d)\} > d_{standard}$

Since POS is functional morphology to saturate degrees, we don't expect it to exist in Washo.

Where does norm-relatedness come from, then? Must be in the adjective itself.

Evidence comes from cases where the standard doesn't hold for both objects in a comparative. In an implicit comparative, only the positive (norm-related) version is used. Expect implicit comparatives to be infelicitous when neither individual meets the standard. We see this in Washo, argues Bochnak.

[2] Though *very* is also cross-categorial to some degree; see Anderson 2016, 2020.

(28) a. Context: comparing a man who is five feet tall and a woman who is four and half feet tall (i.e., both clearly fall under the negative extension of *tall*)

b. ??t'é:liwhu de-ʔil-káykay-iʔ k'-éʔ-i daʔmóʔmoʔ
man NMLZ-ATTR-tall-ATTR 3-COP-IPFV woman
de-ʔil-káykay-iʔ-é:s k'-éʔ-aʔ-š
NMLZ-ATTR-tall-ATTR-NEG 3-COP-AOR-SR
Intended: 'The man is taller than the woman.'
(lit: 'The man is tall, the woman is not tall.')

Norm-relatedness part of the global context, not the immediate context.

- English *compared to*: norm is evaluated in context of two individuals.
- However, in Washo conjoined comparatives, one individual must count as *tall*.

Conclusion

What does all this mean for degrees?

- Some languages have degrees/degree arguments, <d,et>
- Some languages only have vague predicates, type <e,t>
- Type-theoretical differences between languages. Inventory of basic types in a language may vary.
- Possibly variation in what kinds of operations are permitted over degree arguments. Lack means of binding degree arguments with functional morphology.