

Inherent context sensitivity in two unrelated degreeful languages

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1 *pos* and inherent context-sensitivity

1.1 Positive constructions

Gradable adjectives (GAs) usually receive a context-independent denotation. One implementation is that GAs like *tall* denote a relation between degrees and individuals (1) (Heim 2000).

$$(1) \llbracket \text{tall} \rrbracket = \lambda d. \lambda x. \text{Tall}(x) \geq d$$

Context sensitivity of positive constructions is attributed to a covert morpheme *pos* (2) (Cresswell 1976; von Stechow 1984; Kennedy and McNally 2005).

(2) Analysis of positive constructions

$$a. \llbracket \text{pos} \rrbracket^c = \lambda G_{det}. \lambda x. \exists d[\text{STANDARD}(d)(G)(C) \ \& \ G(d)(x)]$$

(Kennedy and McNally 2005:350(13))

$$b. \llbracket \text{Kim is tall} \rrbracket^c = \llbracket \text{pos} \rrbracket^c(\llbracket \text{tall} \rrbracket^c)(\text{Kim}) = 1 \text{ iff } \exists d[\text{standard}(d)(\llbracket \text{tall} \rrbracket)(C) \ \& \ \text{Tall}(\text{Kim}) \geq d]$$

As Rett (2007) points out, the role of *pos* is two-fold: it (i) supplies the contextual standard and (ii) existentially closes the degree argument of a GA.

1.2 Challenges for *pos*

There are challenges for *pos* and the idea that GAs contain no information about the contextual standard.

First, if GAs don't contain information about their contextual standard, we cannot capture the fact that GAs whose comparative forms are mutually entailing (3a), and therefore seem to share a scale, have different contextual standards (3b) (Cariani et al. 2023b).

- (3) a. Miami is warmer than Barcelona. \leftrightarrow Miami is hotter than Barcelona.
b. Miami is warm. \nrightarrow Miami is hot.

A related issue arising from letting *pos* compute the contextual standard was recognized by Kennedy and McNally (2005): the function `STANDARD` in the denotation of *pos* has to compute the standard degree according to the scale structure of a GA (Kennedy and McNally 2005).

- (4) a. $\llbracket \text{pos} \rrbracket^c(\llbracket \text{Adj}_{rel} \rrbracket^c) = \lambda x. \exists d[\text{STANDARD}(d)(\llbracket \text{Adj}_{rel} \rrbracket^c)(C) \ \& \ \llbracket \text{Adj}_{min} \rrbracket^c(d)(x)]$
b. $\llbracket \text{pos} \rrbracket^c(\llbracket \text{Adj}_{min} \rrbracket^c) = \lambda x. \exists d[\text{STANDARD}(d)(\llbracket \text{Adj}_{min} \rrbracket^c)(C) \ \& \ \llbracket \text{Adj}_{min} \rrbracket^c(d)(x)]$
 $= \lambda x. \exists d[d > \mathbf{min}(\llbracket \text{Adj}_{min} \rrbracket^c) \ \& \ \llbracket \text{Adj}_{min} \rrbracket^c(d)(x)]$
(adapted from Kennedy and McNally 2005:350(14), 358(34)-(35))

⁰I'd like to thank Gitksan speakers Vincent Gogag and Hector Hill for educating me about the language with much patience and kindness, and the Gitksan Lab, especially Michael Schwan, Lisa Matthewson, and Henry Davis, for their feedback and support for my fieldwork. I am also grateful to Sigrid Beck, Kai von Fintel, Vera Hohaus, Viola Schmitt, and Alexis Wellwood for their feedback.

Second, the *pos* analysis makes positive forms as morphologically complex as comparative forms, despite the lack of cross-linguistic evidence for an overt counterpart of *pos* (Bobaljik 2012; Grano 2012; Cariani et al. 2023b).

Third, while *pos* reflects an earlier observation that evaluativity arises in the absence of overt degree morphology, evaluativity is more widely observed (Rett 2007, 2008, 2014; Sassoon 2011; Breakstone 2012).

- (5) a. How heavy is the bag? → The bag is heavy.
 b. The bag is as heavy as the box. → The bag is heavy. (Sassoon 2011:532(7))

1.3 Inherent context dependence

There are alternative accounts arguing for inherently context-dependent denotations of GAs (e.g., Oda 2008, Aonuki 2024a on Japanese; Krasikova 2008 on Mandarin; Breakstone 2012, Cariani et al. 2023a,b **on English**).

E.g., In Oda’s (2008) proposal for Japanese (6) (which builds on Beck et al. (2004)), a relative GA denotation makes reference to the standard degree, d_c .

- (6) Oda’s analysis for Japanese
 $\llbracket \text{takai ‘tall’} \rrbracket^c = \lambda d'. \lambda x. \max(\lambda d. \text{tall}(d)(x)) = d_c + d'$
 (adapted from Beck et al. 2004:342(e.n.15(ib)))

1.4 Predictions of inherent context dependency

1.4.1 Comparatives with bare GAs

If bare GAs involve comparison with the contextual standard, **we expect to find more ‘degreeful’** (Beck et al.’s +Degree Semantics Parameter) **languages that have ‘implicit comparison’** (Kennedy 2007) **without an overt standard**.

Examples of implicit comparison in English (with an overt standard) are *compared to* constructions.

- (7) Compared to Lee, Kim is tall. (Kennedy 2007:(48a))

In the *pos* approach, (7) is analyzed with *pos* (Kennedy 2007; Hohaus 2015).

- (8) $\llbracket (7) \rrbracket^c = 1$ iff $\exists d[\text{standard}(d)(\llbracket \text{tall} \rrbracket)(C') \ \& \ \text{Tall}(\text{Kim}) \geq d]$
 where C' only includes Lee and Kim (based on Kennedy 2007:(49))

Note: Although *pos* usually picks out a vague contextual standard in positive constructions, in (7), it seems to pick out Lee’s height (Hohaus 2015).

This suggests that **even in English, empirically, whatever mechanism gives rise to evaluativity in positive constructions can pick out a non-vague degree associated with a particular individual** (see also Kubota 2011 on Japanese). I will argue that this is also the case in Gitksan and Japanese.

1.4.2 MPs with bare GAs

For English, the *pos* approach correctly predicts that *compared to* constructions do not allow an MP because *pos* closes the degree argument of GAs, making it unavailable for further modification of an MP.

(9)?? Compared to Lee, Kim is 10cm tall.

(Kennedy 2007:(58a))

However, if there is no *pos* that closes a degree argument, **we may expect to find languages in which MPs are allowed to occur with implicit comparatives**. I will argue that Gitksan and Japanese are two such languages.

2 Japanese

2.1 Alternative-based implicit comparatives without a standard phrase

Japanese usually doesn't allow comparative readings of positive sentences.¹

(11) [Comparative reading usually unavailable with a positive form alone]

Context: "Which is taller, the cherry tree or the plum tree?"

#Sakura-no ki-ga takai
cherry-GEN tree-NOM tall
intended: 'The cherry tree is taller.'

However, there is a lesser-known positive construction with a comparative reading, involving an alternative-sensitive particle *hoo*, which encodes a presupposition that its argument belongs to a set of alternatives with a cardinality of two (Matsui and Kubota 2012).²

(12) $[[\text{hoo}_C]]^{g,w} = \lambda x: x \in C \ \& \ |C|=2. \ x$ (Matsui and Kubota 2012:7(17))

While Matsui and Kubota (2012) present *hoo* comparatives with a standard phrase marked with *yor*,³ *hoo* comparatives are perfectly fine without *yor* (15).⁴

¹The closest we get to a comparative reading with a positive form without invoking alternatives is when there is a precise contextual standard. While proposing a *pos* account, Kubota (2011) presents (10) to demonstrate that *pos* must be able to pick up a precise degree.

(10) Context: *A needs a wire that is exactly 10m for making a high-precision antenna. B hands A a wire. A measures it with a high-precision ruler, and it is 10m 2mm.*

Kore-wa nagai-kara dame-da!
this-TOP long-because useless-COP
'This one won't work since it's too long!' (lit. 'This one won't work since it's long!')

(adapted from Kubota 2011:9(23))

²Alternative-sensitivity of *hoo* outside of comparatives is seen in (13).

(13) ✓ Context: Choosing a side dish between soup and salad at a restaurant.

Context: Ordering salad at a restaurant.
Watashi-wa sarada-no-**hoo**-o onegaishima-su
I-TOP salad-GEN-**hoo**-ACC request-NPST
'I will have salad, please.' (not the other, i.e., soup)

(Matsui and Kubota 2012:12(24); second context added)

³Matsui and Kubota (2012) analyzes *yor* in (14) as a comparative marker analogous to *-er*.

(14) Context: "Which is taller, John or Mary?"

John-no-hoo-ga Mary-yori se-ga takai
John-GEN-**hoo**-NOM Mary-yori height-NOM tall
'John is taller than Mary.' ('John is the taller of the two.')

(Matsui and Kubota 2012:6(15,16a))

⁴For another example of alternative-based implicit comparison, see Bochnak (2013) on cleft comparison in Luganda.

- (15) [Implicit comparative aided by alternatives]
 Sakura-no ki to ume-no ki-ga a-tte, sakura-no ki-no-**hoo**-ga takai
 cherry-GEN tree and plum-GEN tree-NOM exist-te cherry-GEN tree-GEN-**hoo**-NOM tall
 ‘There are a cherry tree and a plum tree, and the cherry tree is taller.’

This follows if relative GAs are inherently context-sensitive and can access a specific standard degree.⁵

2.2 MPs with bare GAs

MPs can occur with bare GAs in Japanese.

Relative GAs give rise to a differential MP reading if there is a contextually salient standard (16) (Snyder et al. 1995; Beck et al. 2004; Oda 2008; Kubota 2011; Sawada and Grano 2011; Aonuki 2024a).

- (16) [differential MP with bare relative GA]
 Kono ki-wa 8m takai
 this tree-TOP 8m tall
 ‘This tree is 8m taller.’ *‘..8m tall.’

Note: For both Japanese and Gitksan, I take the availability of differential MPs as evidence that the language has degrees as semantic a primitive (von Stechow 1984; Deal and Hohaus 2019).

Bare minimum-standard predicates give rise to an absolute MP reading (Kubota 2011; Sawada and Grano 2011; Aonuki 2024b).

- (17) [absolute MP with bare minimum-standard predicate]
 Poster-ga 5mm katamui-tei-ru
 poster-NOM 5mm tilt-tei-NPST
 ‘The poster is 5mm tilted.’

This follows if relative GAs are inherently context-sensitive while minimum-standard GAs are not.

3 Gitksan

3.1 Language background

- Tsimshianic > Interior Tsimshianic > Gitksan, Nisga’a.
- Spoken in northern British Columbia.
- 255 fluent speakers as of 2022 (Gessner et al. 2022).
- VSO (Rigsby 1986).
- Data from my fieldwork with Vincent Gogag and Hector Hill unless otherwise noted.

⁵See Appendix for an argument against postulating a covert *-er* in (15).

3.2 Implicit comparatives/superlatives without an overt standard

Relative GAs can receive a comparative or superlative reading without any degree operator. An overt standard is optional.⁶⁷

- (18) a. [crisp judgement comparative]
 Context: Anne and Ben are almost the same height, but Anne is a bit taller.
 'Wii 'nakw=t Anne (a[-t]=s Ben)
 big long=PN Anne (PREP[-3.II]=PN Ben)
 'Anne is taller (than Ben).' (HH-v.)
- b. [non-evaluativity]
 Hn'iiluxw dip Lisa gan[-t]=s Michael, ii dulpxw[-t]=s Lisa.
 tall.PL ASSOC Lisa PCNJ[-3.II]=PN Michael CCNJ small[-3.II]=PN Lisa
 'Michael and Lisa are both tall, but Lisa is shorter.'
 (VG-v., inspired by Deal and Hohaus 2019:353(18))
- (19) [superlative]
 'Wii 'nakw=t Mary a[-t]=hl galts'ap
 big long=PN Mary PREP[-3.II]=CN village
 'Mary is the tallest in the village.' (VG)⁸

There is evidence that (18-19) are implicit comparatives/superlatives without a covert degree operator.

Diagnostic: Implicit comparison is incompatible with minimum-standard GAs (20) (Kennedy 2007).

(20)?? Compared to Rod A, Rod B is bent. (Kennedy 2007:(56b))

Positive constructions like (18-19) cannot have comparative/superlative readings when the GA is minimum-standard (21-22). We need an overt degree operator *k'aa* (described in the descriptive grammar of a neighbouring language, Nisga'a, as a marker of comparatives, superlatives, and intensification (Tarpent 1987)).

- (21) [*K'aa* is obligatory in comparatives with a minimum-standard GA]
 #(K'aa) k'ak=hl aats'ip tun a[-t]=hl aats'ip tust
 k'aa open=CN door this PREP[-3.II]=CN door that
 'This door is more open than that door.' (VG)

⁶⁷Initials on the right of each example identify the speaker(s) who provided the judgements. “-v.” indicates that the sentence was volunteered by the speaker as a translation from the English sentence in the context provided.

Glosses follow the conventions in Rigsby (1986). ASSOC: associative; AX: agent extraction; ATTR: attributive; CCNJ: clausal conjunction; CN: common noun connective; COMP: complementizer; DEM: demonstrative; DIST: distal; LVB: light verb; OBL: oblique; PCNJ: phrasal conjunction; PN: proper noun connective; PREP: preposition; PROX: proximal; SX: subject extraction; T: T-morpheme; TR: transitive; Q: question; QUDD: question under discussion downdate; WH: general purpose WH-word; I: series I clitic; II: series II suffix; III: series III independent pronouns.

⁷You might suspect that the combination of the two predicates, 'wii 'big' and 'nakw 'long', may have an effect of intensification. That does not seem to be the case. In the context of describing height, neither 'wii or 'nakw can be used alone. HH rejects both #'Wii=t Michael and #'Nakw=t Michael as a translation of 'Michael is tall', remarking that the former is for being large both vertically and horizontally and only used for a baby or child and that the latter would be 'He's long.'

⁸There are limits and inter-speaker variation as to when comparative and superlative readings are available in positive forms. For example, see the unavailability of a superlative reading in (25a). I assume that this variation has to do with the nature of the comparison class.

- (22) [*K'aa* is obligatory in superlatives with a minimum-standard GA]
 Context: There are many branches, and all are bent.
 Nde=hl anist #(*k'aa*) hlag-it?
 WH=CN branch *k'aa* bent-sx
 'Which branch is the most bent?' (VG)

On the other hand, *k'aa* is optional in comparatives/superlatives with relative GAs (23-24).

- (23) [*K'aa* is optional in comparatives with a relative GA]
 Context: Looking at Anne and Ben.
 (*K'aa*) 'wii 'nakw=t Anne a[-t]=s Ben
 (*k'aa*) big long=PN Anne PREP[-3.II]=PN Ben
 'Anne is taller than Ben.' (HH, VG)

- (24) [*K'aa* is optional in superlatives with a relative GA]
 Context: Looking at four children including Chris.
 (*K'aa*) 'wii 'nakw=t Chris
 (*k'aa*) big long=PN Chris
 'Chris is the tallest.' (HH)

Again, this pattern follows if relative GAs are inherently context-sensitive while minimum-standard GAs are not.

3.3 Evidence for the role of alternatives

I argue that what gives rise to the comparative/superlative reading of a positive construction with a relative GA is consideration of alternatives: e.g., in (18a), the fact that you didn't say that Ben is tall gives rise to an inference that Ben is not in the positive extension of the GA in the context.

There are two pieces of evidence that alternatives play a role in comparatives/superlatives in Gitksan. First, focus extraction (Davis and Brown 2011) aids comparative/superlative readings for VG (25).

- (25) [Focus extraction aids comparison]
 Context: discussing mountains in the world.
- a. #'Wii gephs[-t](=s) sganist Everest
 big high[-3.II](=PN) mountain Everest
 intended: 'Mt. Everest is the tallest.' (VG)
- b. Sganist Everest 'wii gephs-it
 mountain Everest big tall-sx
 'Mt. Everest is the tallest.' (VG-v.)

Second, for both HH and VG, a morpheme *gay* 'instead'⁹ optionally appears in comparative/superlative sentences.

- (26) [*Gay* 'instead' in comparative] (27) [*Gay* 'instead' in superlative]
 (*Gay*) *k'aa* sdin=hl x̄biist tun Context: Looking at Michael, Lisa, and
 instead *k'aa* heavy=CN box this Yurika
 'This box is heavier.' (HH-v.) (*Gay*) *k'aa* 'wii 'nakw=t Michael
 intead *k'aa* big long=PN Michael
 'Michael is the tallest.' (VG-v.)

3.4 MPs with bare GAs

Measure phrases (MPs) occurring with a relative GA obligatorily receive a differential reading.

- (29) [differential MP with a relative GA]
 K'i'y=hl t'im k'aax win 'wii 'nakw[-t]=hl ha'niitxookxw tun.
 one=CN whole arm COMP big long[-3.II]=CN table this
 'This table is one fathom longer (than another table).' *'.. one fathom long' (VG)

- (30) [differential MP with a relative GA]
Context: You have to be 4 feet or taller to get on the roller coaster. John is 3 feet and 11 inches.
 K'i'y=hl (hle) moos win dulpxw[-t]=s John
 one=CN (crook) thumb COMP small[-3.II]=PN John
 'John is one inch shorter.' (VG, HH)

On the other hand, bare minimum-standard GAs force an absolute MP reading.

- (31) [absolute MP with a minimum-standard GA]
 (K'i'y=hl) hlek moos win k'aak[-t]=hl aats'ip
 one=CN crook thumb COMP open[-3.II]=CN door
 'The door is open by one inch.' (VG-v., HH-v.)

MP interpretations with bare relative vs. minimum-standard GAs are exactly the same as Japanese.

4 Analysis: Inherent context dependency

I propose that 1) the availability of implicit comparison without an overt standard and 2) differential interpretations of MPs occurring with bare relative GAs in Gitksan and Japanese are due to inherent context dependency of these GAs.

Inherently context-dependent GA denotations have been proposed for Japanese (32) (Beck et al. 2004; Oda 2008).

- (32) Oda's analysis for Japanese
 $\llbracket \text{takai 'tall'} \rrbracket^c = \lambda d'. \lambda x. \max(\lambda d. \text{tall}(d)(x)) = d_c + d'$
 (adapted from Beck et al. 2004:342(e.n.15(ib)))

⁹Bicevskis et al. (2017) gloss *gay* in comparative constructions as a 'contrastive' marker. *Gay* can associate with any lexical element in the sentence and signal that there is a salient alternative to the referent of the associate that makes the proposition false (28).

- (28) a. [Agent] Context: John was supposed to make a cake, but he was too busy, so Mary made it instead.
 Gay=t Mary an=t jap[-t]=hl ixsta-m anaax
 instead=PN Mary AX=1.I make[-3.II]=CN sweet-ATTR bread
 'Mary made a cake instead.' (VG-v.)
- b. [Object] Context: "Did Mary make fried bread?"
 Nee. Gay jab-i-t=hl ixsta-m anaax.
 no. instead make-TR-3.II=CN sweet-ATTR bread
 'No, she made a cake instead.' (HH-v.)

In my account, I will make the GA denotation always take d_c as an argument (34),¹⁰ which is supplied by a covert degree variable.¹¹ This is because this degree can be bound (see below).

$$(34) \quad \llbracket \text{takai}'wii'nakw} \text{ 'tall'} \rrbracket^{g,w,c} = \lambda d: \mathbf{d} \neq \mathbf{0} \ \& \ \mathbf{d} \text{ is salient in } \mathbf{c}. \lambda x. \lambda d'. \text{Height}(x)(w) \geq d + d'$$

Minimum-standard GAs require that the first degree argument is zero.

$$(35) \quad \llbracket k'ak} \text{ 'open'} \rrbracket^{g,w,c} = \lambda d: \mathbf{d} = \mathbf{0}. \lambda x. \lambda d'. \text{Openness}(x)(w) \geq d + d'$$

4.1 Japanese

In the implicit comparative in (36), the contextually salient degree corresponds to the height of the plum tree due to the contribution of an alternative-sensitive particle *hoo* (37).

(36) Sakura-no ki to ume-no ki-ga a-tte, sakura-no ki-no-hoo-ga takai
 cherry-GEN tree and plum-GEN tree-NOM exist-te cherry-GEN tree-GEN-hoo-NOM short
 ‘There are a cherry tree and a plum tree, and the cherry tree is shorter.’

$$(37) \quad \llbracket \text{hoo}_C \rrbracket^{g,w,c} = \lambda x: x \in C \ \& \ |C|=2. x \quad (\text{adapted from Matsui and Kubota 2012:7(17)})$$

$$(38) \quad \llbracket (36) \rrbracket^{g,w,c} = \llbracket [\text{chery tree hoo}] d_3 \text{ takai} \rrbracket^{g,w,c} = \exists d' [\text{Height}(\text{cherry tree})(w) \geq g(3)+d']$$

defined only if $g(3) \neq 0$ & $g(3)$ is salient in c and $\text{cherry tree} \in C \ \& \ |C|=2$

Differential readings of MPs occurring with bare relative GAs (39) also follow (Oda 2008).

(39) Kono ki-wa 8m takai
 this tree-TOP 8m tall
 ‘This tree is 8m taller.’ *‘..8m tall.’

$$(40) \quad \llbracket (39) \rrbracket^{g,w,c} = \llbracket 8m \text{ this tree } d_3 \text{ takai} \rrbracket^{g,w,c} = \text{Height}(\text{this tree})(w) \geq g(3) + 8m$$

defined only if $g(3) \neq 0$ & $g(3)$ is salient in c

4.2 Gitksan

Recall that the morpheme *k'aa* makes comparative/superlative readings available for minimum-standard GAs (41).

(41) [comparative with a minimum-standard adjective]
 #(K'aa) k'ak=hl aats'ip tun a[-t]=hl aats'ip tust
 k'aa open=CN door this PREP[-3.II]=CN door that
 ‘This door is more open than that door.’ (VG)

¹⁰Oda (2008) does have a version of a GA denotation that takes the standard degree as an argument when this degree must be provided by a covert function in her analysis (206:(87-8)). For both the standard and differential degrees, her assumption seems to be that they are optionally taken as an argument only when there is another morpheme that manipulates that degree, which would result in four lexical denotations of one GA. My goal is to provide uniform treatment.

¹¹A covert degree variable has been proposed for comparatives with an implicit standard in English (33) (Hohaus 2015).

(33) a. (That table is 4 feet wide.) This table is wider.

b. $\llbracket \text{-er } d_7 \rrbracket^g = \lambda D_{dt}. \text{MAX}(D) > g(7)$ (Hohaus 2015:8(11))

I define *k'aa* as a marker of an explicit superlative (42), which binds the salient degree argument of a GA and plugs in the zero degree.

$$(42) \quad \llbracket k'aa \rrbracket^{g,w,c} = \lambda C_{et}. \lambda P_{dedt}. \lambda x. \lambda d. P(0)(x)(d)=1 \ \& \ d > \text{MAX}[\lambda d'. \exists y[y \in C \ \& \ y \neq x \ \& \ P(0)(y)(d')=1]]$$

I assume for concreteness that the PP headed by *a* specifies the domain of salient individuals to be only consisting of its complement and the subject.¹²

$$(43) \quad \llbracket a \rrbracket^{g,w,c} = \lambda x. \lambda P_{edtt}. \lambda y. \lambda d. P(y)(d)=1 \ \text{defined only if } C = \{x, y\}$$

(44) Denotation of (41) with (a) and without (b) *k'aa*

a. Explicit comparison with *k'aa*

$$\llbracket K'aa \ k'ak=hl \ aats'ip \ tun \ a[-t]=hl \ aats'ip \ tust \rrbracket^{g,w,c} = \llbracket \text{this door } k'aa \ C \ 3 \ k'ak \ d_3 \ a \ \text{that door} \rrbracket^{g,w,c} \\ = \exists d[\text{Openness}(\text{this door})(w) \geq 0+d \ \& \ d > \text{MAX}[\lambda d'. \exists y[y \in C \ \& \ y \neq \text{this door} \ \& \ \text{Openness}(y)(w) \geq 0+d']]] \\ \text{defined only if } C = \{\text{this door}, \text{that door}\}$$

b. No comparison without *k'aa*

$$\llbracket K'ak=hl \ aats'ip \ tun \ a[-t]=hl \ aats'ip \ tust \rrbracket^{g,w,c} = \llbracket \text{this door } k'ak \ d_3 \ a \ \text{that door} \rrbracket^{g,w,c} \\ = \exists d[\text{Openness}(\text{this door})(w) \geq g(3)+d] \\ \text{defined only if } g(3)=0 \ \text{and } C = \{\text{this door}, \text{that door}\}$$

On the other hand, with a relative GA, comparison can be achieved with or without *k'aa* (45).

(45) [*K'aa* is optional in comparatives with a relative GA]

Context: Looking at Anne and Ben.

(*K'aa*) 'wii 'nakw=t Anne a[-t]=s Ben

(*k'aa*) big long=PN Anne PREP[-3.II]=PN Ben

'Anne is taller than Ben.'

(HH, VG)

This is correctly predicted by my denotations of relative GAs and *k'aa* (46).

(46) a. Explicit comparison with *k'aa*

$$\llbracket K'aa \ 'wii \ 'nakw=t \ Anne \ a[-t]=s \ Ben \rrbracket^{g,w,c} = \llbracket \text{Anne } k'aa \ C \ 3 \ 'wii \ 'nakw \ d_3 \ a \ \text{Ben} \rrbracket^{g,w,c} \\ = \exists d[\text{Height}(\text{Anne})(w) \geq 0+d \ \& \ d > \text{MAX}[\lambda d'. \exists y[y \in C \ \& \ y \neq \text{Anne} \ \& \ \text{Height}(y)(w) \geq 0+d']]] \\ \text{defined only if } C = \{\text{Anne}, \text{Ben}\}$$

b. Implicit comparison without *k'aa*

$$\llbracket 'Wii \ 'nakw=t \ Anne \ a[-t]=s \ Ben \rrbracket^{g,w,c} = \llbracket \text{Anne } 'wii \ 'nakw \ d_3 \ a \ \text{Ben} \rrbracket^{g,w,c} \\ = \exists d[\text{Height}(\text{Anne})(w) \geq g(3) + d] \\ \text{defined only if } g(3) \neq 0 \ \& \ g(3) \ \text{is salient in } c \ \text{and } C = \{\text{Anne}, \text{Ben}\}$$

5 Conclusion

- Japanese and Gitksan show patterns that are predicted by the proposals for inherently context-sensitive denotations of relative GAs (Oda 2008; Krasikova 2008; Breakstone 2012; Cariani et al. 2023a,b; Aonuki 2024a).
 - Implicit comparison without an overt standard.
 - Consistent compatibility of MPs with bare GAs and their differential interpretations with relative GAs.

¹²See Appendix for the range of expressions that can appear in a PP in this position.

- The role of alternatives in implicit comparison.
- Striking similarities between two unrelated languages.

6 Appendix

6.1 Evidence against a covert *-er* in Japanese *hoo* comparatives with relative GAs

What would be minimum-standard GAs in English are often expressed with a verb + an aspectual marker *-tei-* (Oda 2008; Kubota 2011; Sawada and Grano 2011; Aonuki 2024b). With these predicates, *hoo* constructions seem ambiguous.

- (47) Akai harigane to aoi harigane-ga a-tte, akai harigane-no-hoo-ga maga-ttei-ru
 red wire and blue wire-NOM exist-te red wire-GEN-hoo-NOM bend-tei-NPST
 a) ‘There are a red wire and a blue wire, and the red wire is bent (while the blue one is not).
 b) ‘There are a red wire and a blue wire, and the red wire is more bent (than the blue one).’

However, speakers comment that (47b) is weaker than (47a) and paraphrase (47b) with a version with *yori* ‘more’ (48).¹³

- (48) Akai harigane to aoi harigane-ga a-tte, akai harigane-no-hoo-ga **yori** maga-ttei-ru
 red wire and blue wire-NOM exist-te red wire-GEN-hoo-NOM **more** bend-tei-NPST
 ‘There are a red wire and a blue wire, and the red wire is more bent (than the blue one).’

I therefore assume that (47b) has a covert *yori* ‘more’. Crucially, it cannot be that the *hoo* comparative in (15) has a covert *yori* ‘more’, since adding it overtly would give rise to evaluativity (49).

- (49) Sakura-no ki to ume-no ki-wa a-tte, sakura-no ki-no-hoo-ga **yori** takai
 cherry-GEN tree and plum-GEN tree-TOP exist-te cherry-GEN tree-GEN-hoo-NOM **more** tall
 ‘There are a cherry tree and a plum tree, and the cherry tree is taller.’ → The cherry and plum trees are tall.

Therefore, I conclude that *hoo*-comparatives with relative GAs are implicit comparatives.

6.2 Analytical challenge of the “standard phrase” in Gitksan

Because the degree operator *k’aa* is optional with relative GAs, I have assumed that an optional PP headed by *a(∼e)* in Gitksan, which often seems to contribute the standard of comparison, is an adjunct rather than an argument of *k’aa*.

Rigsby (1986: 422) describes *a(∼e)* as a ‘general preposition’ marking oblique arguments.

- (50) Ii=t sim kwhilii his-yets-diit e[-t]=hl luuhligyootxw
 CCNJ=3.I truly all.over PL-chop-3PL.II PREP[-3.II]=CN axe
 ‘And they completely chopped it up with axes.’ (Forbes et al. 2017:71(24))

Existing accounts of similar constituents analyze them as restricting the context, either by restricting the domain of individuals (Kennedy 2007 on *compared to*, Pearson 2010 on *mai* in Fijian) or specifying the minimal situation (Hohaus 2015 on *compared to*). A wide range of expressions that appear in a *a*-PP in Gitksan poses an analytical challenge.

¹³This morpheme emerged in Modern Japanese out of the needs for translation from Dutch and English, and it differs from the standard marker *yori* in prosodic and syntactic properties (Sawada 2013).

- (51) [salient location]
 Naa=hl k'aa ama wil-it a[-t]=hl Japan?
 who=CN k'aa good LVB-SX PREP[-3.II]=CN Japan
 'Who is the richest in Japan?' (VG-v.)
- (52) [MP]
 Gay k'aa 'wii 'nakw 'nii'y a[-t]=hl k'i'yhl t'im k'aax
 instead k'aa big long 1SG.I PREP[-3.II]=CN one whole arm
 'I'm taller than one fathom.' (VG-v.)
- (53) [(seemingly) clausal]
 Your friend told you the movie is 2 hours long, but you've been in the theater for well over 2 hours
 and the movie doesn't end.
 Gay k'aa 'wii 'nakw tun a[-t]=hl mehl-d-i-n loo-'y
 instead k'aa big long this PREP[-3.II]=CN tell-T-TR-2SG.II OBL-1SG.II
 'This is longer than you told me.' (HH, VG)

While the *a*-PP in (53) appear clausal, subcomparatives are unavailable (54), which suggests that there is no abstraction over degrees in the PP (Beck et al. 2004).

- (54) Context: John is trying to bring a new mirror into his house. But it's stuck at the door.
- a. *Gay k'aa 'wii hila'y=hl anksulaagaltxw e[-t]=hl 'wii nakw=hl aats'ib-i'm
 instead more large wide=CN mirror PREP[-3.II]=CN large long=CN door-1PL.II
 intended: 'The mirror is wider than our door is tall' (VG)
- b. *Gay k'aa 'wii ooks=hl anksulaagaltxw a[-t]=hl 'wii nakw=hl aats'ip
 instead more large wide=CN mirror PREP[-3.II]=CN large long=CN door
 intended: 'The mirror is wider than our door is tall' (HH)

One possibility is that the seemingly clausal PP in (53) is a headless free relative ('super free relatives' in Caponigro 2021), which is independently observed in the language (Aonuki 2022).

- (55) Indefinite context: John is thinking of adopting a dog. He says before visiting a dog shelter
 Definite context: John is at a dog shelter. Only one dog liked him, and the other dogs ran away.
 Dim si-hlguuhl-xw-'y=hl (hinda=hl) an=t anoog-a'y
 FUT CAUS-child-PASS-1SG.II=CN WH=CN AX=3.I like-1SG.II
 'I will adopt **the/a one that likes me.**' (VG)

Still, it would be an over-generalization to say that *a* takes an individual rather than a degree (see Kennedy 2007 on Japanese), given the compatibility with an MP (52) and the acceptability of subcomparatives with a nominalizer (56).

- (56) [subcomparative]
 Gay k'aa 'wii ooks=hl anksulaagantxw a[-t]=hl ga-'nakw=hl aats'ip
 instead k'aa long wide=CN mirror PREP[-3.II]=CN ga-long=CN door
 'The mirror is wider than the height of the door.' (HH-v.)

6.3 Nominalizing gets rid of comparison

Other degree constructions in Gitksan (see Aonuki (2024a) on Japanese), namely absolute MPs (with relative GAs), degree questions, degree demonstratives, and equatives, all involve a nominalizer *ga-*.¹⁴

- (57) [absolute MP]
 Tk'alp̄x se'e *(ga)-ooks-i=hl aats'ip
 four foot *(ga)-wide-i=CN door
 'The door is 4 feet wide.' (Lit. 'The width of the door is 4 feet.') (VG-v.)
- (58) [degree question]
 Nd{a/e}=hl *(ga)-nagw-i-n?
 WH=CN ga-long-i-2SG.II
 'How tall are you?' (Lit. 'What is your height?') (HH-v.)
- (59) [degree demonstrative] Context: A daughter describing her friend's height to her mother. Gesturing at her own height.
 Tun=hl ga-'nagw-i-t
 DEM.PROX=CN ga-long-i-3.II
 'She is this tall.' (Lit. 'Her height is this.') (VG-v., HH-v.)
- (60) [equative]
 Sagay k'i'y=hl ga-hi'niiluxw-i-si'm
 together one=CN ga-long.PL-i-2PL.II
 'We are the same height.' (Lit. 'Our heights are the same.') (VG-v.)

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¹⁴Rigsby (1986) describes that *ga-* in Gitksan “forms abstract nominals that signify some attribute or entity” (95), and Tarpen (1987) similarly describes that *ga-* in Nisgaha attaches to an adjectival predicate and forms “an abstract noun” (244).