

# Comparison in Tswefap: Evidence for degree abstraction in an exceed-comparative language\*

Emily Clem & Erik Hans Maier  
University of California, Berkeley  
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## 1 Introduction

- The crosslinguistic study of comparison has demonstrated that there is a great deal of variation both morphosyntactically and semantically
- Morphosyntactic variation includes:
  - Variation in the category of the gradable predicate and comparative morpheme (Stassen, 1985)
  - Variation in whether comparatives are phrasal or clausal (Bhatt and Takahashi, 2011)
  - Variation in the syntactic structure of the comparative (Stassen, 1985)
- Semantic variation includes:
  - Variation in the type of gradable predicates (Beck et al., 2009; Bochnak, 2015)
  - Variation in whether there are expressions that reference degrees (Beck et al., 2009)
  - Variation in whether the comparative morpheme is two- or three-place (Bhatt and Takahashi, 2011; Bochnak, 2018)
  - Variation in whether there is abstraction over degrees (Beck et al., 2009)
- We present data from Tswefap (Grassfields; Cameroon) which
  - Morphosyntactically has an “exceed” type comparative in Stassen’s (1985) typology
  - Semantically shows evidence for degrees and degree abstraction in terms of Beck et al.’s (2009) parameters

- We demonstrate that Tswefap employs both an attested morphosyntactic strategy for forming comparatives as well as several strategies that were unattested in Stassen’s survey
- We argue that Tswefap allows the full range of constructions expected for a language with degree abstraction even though it uses a morphosyntactic strategy that is different from many languages that have been shown to have degree abstraction
- This suggests that the morphosyntactic form of the comparative does not limit the semantic possibilities associated with comparison
- Further, by contrasting Tswefap and Yoruba (Howell, 2013), we argue that some variation among exceed-comparative languages may be due to the availability of lexical items rather than parameter settings
- **Roadmap:**
  - §1: Introduction
  - §2: Tswefap exceed comparatives
  - §3: Degrees and degree abstraction in comparatives
  - §4: Evidence for degrees and degree abstraction in Tswefap
  - §5: Degree abstraction in Tswefap vs. Yoruba
  - §6: Conclusion

## 2 Tswefap exceed comparatives

- Tswefap is a variety of the Batoufam dialect of Nda’nda’, a Bamileke Narrow Grassfields language
- Data here were elicited in 2017 and 2018 with a speaker in Berkeley, California
- Tswefap property concept terms can be expressed as attributive adjectives or as verbs

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- The adjective and verb forms are not morphologically related and are not interchangeable

- Gradable adjective:

- (1) a. Mezhwe mi a tseuk nkumnkum  
 small person FACT eat fufu  
 'The small person ate fufu.'
- b. \*Mi yoh a mezhwe  
 person DEM FACT small  
 Intended: 'That person is small.'

- Gradable verb:

- (2) a. \*Khoh mi a tseuk nkumnkum  
 be.small person FACT eat fufu  
 Intended: 'The small person ate fufu.'
- b. Mi yoh a khoh  
 person DEM FACT be.small  
 'That person is small.'

- We will focus on the gradable predicates that are verbs since only these can be used in comparatives and other structures that involve degrees
- In the typology of Stassen (1985) Tswefap is an exceed-comparative language
- Comparatives in Tswefap all involve the verb *tchege* 'pass'
- Two ways to express comparatives directly involve a gradable predicate
- The gradable predicate can form a serial verb construction (SVC) with *tchege*

- (3) Nkwehnwoh a seh n-tchege Chimi  
 K. FACT be.tall N-pass C.  
 'Kuamo is taller than Chimi.'

- (4) Chimi a voh n-tchege Nkwehnwoh  
 C. FACT be.short N-pass K.  
 'Chimi is shorter than Kuamo.'

- The verb *loh* 'take' can form an SVC with *tchege* with an infinitival form of the gradable predicate appearing as the object of *loh*

- (5) Chimi a loh mbege seh n-tchege Nkwehnwoh  
 C. FACT take INF be.tall N-pass K.  
 'Chimi is taller than Kuamo.'

- (6) Chimi a loh mbege voh n-tchege Nkwehnwoh  
 C. FACT take INF be.short N-pass K.  
 'Chimi is shorter than Kuamo.'

- Two ways of forming comparatives involve no gradable verb
- In these constructions the scale of comparison is made clear through the use of a measure phrase
- The *loh + tchege* comparative can be used with a measure phrase as the object of *loh*

- (7) Chimi a loh ta' tsewe n-tchege Nkwehnwoh  
 C. FACT take one head N-pass K.  
 'Chimi is one head taller than Kuamo.'

- (8) Chimi a loh ngu' toh n-tchege Nkwehnwoh  
 C. FACT take year five N-pass K.  
 'Chimi is five years older than Kuamo.'

- The verb *tchege* can be used on its own with a measure phrase PP

- (9) Chimi a tchege Nkwehnwoh pu ta' mehteh  
 C. FACT pass K. with one meter  
 'Chimi is one meter taller than Kuamo.'

- (10) Chimi a tchege Nkwehnwoh pu ngu' toh  
 C. FACT pass K. with year five  
 'Chimi is five years older than Kuamo.'

- Note that measure phrase PPs are also possible with the two types of comparatives that involve a gradable predicate

(11) Nkwehwoh a seh n-tchege Chimi pu ta' tswe  
K. FACT be.tall N-pass C. with one head  
'Kuamo is one head taller than Chimi.'

(12) Chimi a loh mbege seh n-tchege Nkwehwoh pu ta'  
C. FACT take INF be.tall N-pass K. with one  
tswe  
head  
'Chimi is one head taller than Kuamo.'

- Finally, since comparatives involve SVCs it is possible to have more than two verbs, leading to patterns that utilize multiple of the above elements in the comparative

(13) Chimi a loh ta' tswe seh n-tchege Nkwehwoh  
C. FACT take one head be.tall N-pass K.  
'Chimi is one head taller than Kuamo.'

- The first type of SVC comparative with a gradable predicate and an exceed verb, as seen in (3) and (4), is discussed by Stassen for many languages in his survey
- The remaining ways of forming exceed-comparatives in Tswefap were not reported for any of the languages surveyed by Stassen

### 3 Degrees and degree abstraction in comparatives

- Consider what is being compared in a sentence like (14)

(14) The door is taller than the couch is wide.

- We could say that what is being compared here is the degree of the door's height and the degree of the couch's width
- A proposal in the semantics literature is that degrees are actually a basic type:  $d$
- Beck et al. (2009) argue that languages differ in whether they make use of degrees (Degree Semantics Parameter), with some languages lacking gradable  $\langle d, \langle e, t \rangle \rangle$  predicates altogether

- One observation about degrees is that they are semantically much like individuals (objects of type  $e$ )
  - There are expressions that refer to degrees (*4 feet*) just like there are expressions that refer to individuals (*Mary*)
  - There are generalized quantifiers over degrees ( $\langle \langle d, t \rangle, t \rangle$ ) just like there are generalized quantifiers over individuals ( $\langle \langle e, t \rangle, t \rangle$ )
  - Generalized degree quantifiers can QR to create abstractions over variables of type  $d$ , just like generalized quantifiers over individuals can QR to abstract over type  $e$  variables
- Beck et al. (2009) propose that languages can also differ in whether they allow abstraction over degrees (Degree Abstraction Parameter)
- From these two parameters alone, we can expect three types of languages
  - No degrees (-DSP): Motu (Austronesian; Papua New Guinea) entirely lacks expressions that reference degrees
  - Degrees, but no abstraction (+DSP,-DAP): Mooré (Gur; Burkina Faso) has expressions that refer to degrees but does not allow constructions that require binding of degree variables
  - Degrees and degree abstraction (+DSP,+DAP): English has expressions that refer to degrees and constructions that involve degree variable binding, like (14)
- We will argue that Tswefap is of the third type, having degrees and degree abstraction

### 4 Evidence for degrees and degree abstraction in Tswefap

- Beck et al. (2009) discuss 2 types of constructions that only languages that make use of degrees may have, and they identify an additional 5 constructions that only languages that allow abstraction over degrees may have
- We will demonstrate that Tswefap allows all seven of these constructions
- The conclusion we draw from this is that Tswefap allows degrees and abstraction over degrees in the semantics

## Difference comparatives

- Difference comparatives are those which make use of a differential measure phrase
- The measure phrase itself refers to a degree, requiring the semantics to admit objects of type d
- Tswefap allows differential measure phrases in all of the types of comparatives introduced in §2

- (15) a. Nkwehnowoh a seh n-tchege Chimi **pu ta' tswe**  
 K. FACT be.tall N-pass C. with one head  
 'Kuamo is one head taller than Chimi.'
- b. Chimi a seh **pu ta' tswe** n-tchege Nkwehnowoh  
 C. FACT be.tall with one head N-pass K.  
 'Chimi is one head taller than Kuamo.'

## Comparison with a degree

- In a comparison with a degree, some expression referring to a degree is itself the standard of comparison
- Tswefap allows expressions of type d to be the standard of comparison

- (16) Chimi a seh n-tchege ta' mehteh  
 C. FACT tall N-pass one meter  
 'Chimi is taller than one meter.'

## Direct measure phrases

- Beck et al. (2009) assume that direct measure phrases are quantifiers over degrees
- The measure phrase QRs to bind a variable of type d
- Tswefap allows direct measure phrases to appear with gradable predicates without a PP

- (17) Chimi a tsey kilo ghap  
 C. FACT be.heavy kilo 10  
 'Chimi weighs 10 kilos.' (*Lit.* 'Chimi is 10 kilos heavy.')

## Degree questions

- Degree questions involve binding of a degree variable to create a reading which can be paraphrased as, for which d is C. d-tall
- (18) Chimi a seh ndohk pa'lieh  
 C. FACT tall QUANT how  
 'How tall is Chimi?'

## Subcomparatives

- Subcomparatives are clausal comparatives where the clause contains another gradable predicate
- Because subcomparatives involve comparison along two different scales, the objects being compared must be two sets of degrees
- In order to form sets of degrees, there must be degree abstraction

- (19) Chimi a seh n-tchege pa' nkhe Nkwehnowoh ne seh a  
 C. FACT be.tall N-pass like rope K. INF be.tall A  
 'Chimi is taller than Kuamo's rope is long.'

## Negative island effects

- In languages with degree abstraction, negation in the 'than'-clause results in unacceptability
- (20) \*Chimi bought a more expensive book than no one did.
- The unacceptability of such examples is due to the fact that the maximum degree of expense of a book that no one bought is undefined (von Stechow, 1984)

- In Tswefap, we find negative island effects, suggesting that degree abstraction is involved

(21) \*Chimi a yu ta' nwa'nye me yeh teuk n-tchege yoh yi  
 C. FACT buy one book ME it expensive N-pass DEM REL  
 sop mi nteh yu a  
 no person NEG buy REL

Intended: 'Chimi bought a more expensive book than the one no one bought.'

(Consultant comment: 'Grammatically it's correct, but it doesn't have meaning.')

### Scope ambiguities

- Heim (2000) argues that we find the type of scope ambiguities we would expect if expressions that quantify over degrees can move above other scope-taking elements, such as modals
- In Tswefap we find evidence that degree phrases do behave like quantifiers

(22) yi me ntchohk nge pa' yoh loh kwa' sehntimeyteh yeh  
 it.is.required that building DEM take exactly centimeter YEH  
 pege seh n-tchege pa' yi ne mbi ndeh le  
 two be.tall N-exceed like 3SG INF be now LE

'It is required that the building be exactly 2cm taller than it is now.'

✓ Context 1:  $\forall w > \max$

You are in a contest where you have to build a model building out of clay. The building must be 3 meters tall, no more, no less. Currently, your building is 2.98 meters tall. Can the judge say the following truthfully?

?✓ Context 2:  $\max > \forall w$

You are in a contest where you have to build a model building out of clay. The building must be at least 3 meters tall, but can be more. Currently, your building is 2.98 meters tall. Can the judge say the following truthfully?

- The sentence in (22) is compatible with both of the given contexts
  - In the Context 1, the modal takes wider scope than the degree quantifier
  - In the Context 2, the degree quantifier takes wider scope than the modal

### Interim summary

- The evidence we have seen from all of the constructions considered by Beck et al. (2009) suggests that Tswefap allows expressions that reference degrees in the semantics
- The evidence from direct measure phrases, degree questions, subcomparatives, negative island effects, and scope ambiguities suggests that Tswefap also allows abstraction over degrees
- Though Tswefap comparatives differ from their English counterparts syntactically, they allow the same range of semantic possibilities

## 5 Degree abstraction in Tswefap vs. Yoruba

- Beck et al. (2009) consider two exceed-comparative languages in their sample: Mooré (Gur; Burkina Faso) and Yoruba (Benue-Congo; Nigeria)
- They argue that both of these languages make use of degrees in their semantics, but neither allow abstraction over degrees
- Further study of Yoruba by Howell (2013) suggests that the facts may be more complicated
  - She argues that Yoruba does have degree abstraction
  - She attributes the difference between Yoruba and other languages with degree abstraction to a difference in the lexicon
- We will argue that Tswefap supports Howell's hypothesis that the difference between Yoruba and English (or Tswefap) is due to a difference in lexical items only, not a parametric difference

## Evidence for degrees in Yoruba

- Beck et al. (2009) demonstrate that Yoruba allows difference comparatives, (23), and comparison with a degree, (24)

(23) Kathy fi esebata kan ga ju Sandra lo.  
K. with foot one is.tall exceed S. go  
'Kathy is one foot taller than Sandra.' (Beck et al., 2009, p. 21)

(24) Kathy ga ju esebata marun ataabo lo.  
K. is.tall exceed foot five and half go  
'Kathy is taller than five and a half feet.' (Beck et al., 2009, p. 21)

- The availability of these constructions suggests that Yoruba does make use of degrees

## Degree abstraction in Yoruba

- Beck et al. (2009) report the absence of the 5 types of constructions that would provide evidence for degree abstraction in Yoruba
- Howell (2013) confirms that direct measure phrases are not possible in Yoruba and that Yoruba does not show scope ambiguities
- However, Howell argues that Yoruba does have degree abstraction in degree questions<sup>1</sup>

(25) Bawo ni Ade se ga to  
how FOC A. Q be.tall reach  
'How tall is Ade?' (Howell, 2013, p. 281)

- Howell also argues that degree relatives display negative island effects, (26), and can be used to form subcomparatives, (27)

<sup>1</sup>Beck et al. (2009) do not consider examples like the one in (25) to be true degree questions since they involve the verb *to* 'reach', which is used in equative constructions. Howell (2013) argues that these constructions must still involve degree abstraction despite using the equative verb.

(26) \*John ra iwe to won ju bi Peter ko se ra iwe  
J. buy book REL expensive exceed how P. not Q buy book  
ti o won  
REL 3.SG expensive  
'John bought a more expensive book than Peter didn't buy.'  
(Howell, 2013, p. 283)

(27) Michael Jordan je agbaboolu-alapere ti o dara ju bi  
M. J. be basketball.player REL 3.SG be.good exceed how  
David Beckham se je agbaboolu-elese lo  
D. B. Q be football.player STD  
'Michael Jordan is a better basketball player than David Beckham is  
a (good) football player.'  
(Howell, 2013, p. 283)

- These two accounts of Yoruba are summarized in (28) and compared to Tswefap and English

(28)	Yoruba (Beck et al.)	Yoruba (Howell)	Tswefap	English
Diff C	yes	yes	yes	yes
CompDeg	yes	yes	yes	yes
MP	no	no	yes	yes
DegQ	no	yes	yes	yes
SubC	n/a	yes	yes	yes
NegIs	n/a	yes	yes	yes
Scope	no	no*	yes	yes

## Scope ambiguities in Tswefap and Yoruba

- If we follow Howell (2013) in assuming that Yoruba allows abstraction over degrees, one question that arises is why Yoruba does not show scope ambiguities
- Howell confirms Beck et al.'s (2009) observation that sentences like the one in (29) have only the reading where the degree quantifier takes narrow scope

- (29) iwé náà gbòdò gùn ju iyen lọ pèlú ojú-ewé márùn  
 book the has.to is.long exceed that.one go with page five  
 gérégé  
 exactly  
 ‘The book has to be exactly 5 pages longer than that one.’  
 (Beck et al., 2009, Appendix 2)
- ✓ Context 1:  $\forall w > \max$   
 The paper is 10 pages long. In order to meet the class requirements it must be 15 pages long, no more, no less.
- # Context 2:  $\max > \forall w$   
 The paper is 10 pages long. In order to meet the class requirements it must be at least 15 pages long, but can be more.
- If Yoruba allows degree abstraction, it should be possible for the degree quantifier to scope above the modal
  - Howell (2013) hypothesizes that the lack of the wide scope reading for the degree quantifier is not due to its inability to move and bind a degree variable
  - Instead, Howell hypothesizes that *gerege* ‘exactly’ is not a degree operator, but rather a sentential operator
    - Without a true degree operator like *exactly*, *ojú-ewé márùn* ‘five pages’ will literally mean ‘at least five pages’
    - This will derive an ‘at least’ reading for both the wide and narrow scope of the degree quantifier
    - The addition of the sentential operator *gerege* would then rule out all stronger alternatives, yielding only the ‘exactly’ reading
  - Howell notes that Yoruba seems to lack modified numeral measure phrases like ‘exactly/at least five books’ altogether
  - She hypothesizes that this is the reason for the lack of scope ambiguities
  - The prediction of Howell’s account is that if a language with comparatives like Yoruba had modified numeral measure phrases, it would display scope ambiguities
  - In Tswefap, we do find modified numeral measure phrases
  - As demonstrated in §4 Tswefap does show scope ambiguities

- Therefore, Tswefap lends support to Howell’s hypothesis that the presence/absence of scope ambiguities in languages with other evidence for degree abstraction correlates with the presence/absence of modified numeral measure phrases
  - If a language lacks modified numeral measure phrases, it will lack scope ambiguities
  - If a language has modified numeral measure phrases and other evidence for degree abstraction, it may show scope ambiguities

## 6 Conclusion

- We have provided a novel description of the system of comparison in Tswefap
- Tswefap displays types of exceed-comparative constructions that are not attested in Stassen’s (1985) survey
- Tswefap exhibits evidence of degrees and abstraction over degrees in the semantics, based on all of the criteria of Beck et al. (2009)
- This means that Tswefap shows a fuller range of constructions involving degree abstraction than the exceed-comparative languages considered by Beck et al., such as Yoruba
- Therefore, the morphosyntax of comparative constructions does not seem to limit the semantic mechanisms involved in comparatives
- Tswefap differs from Yoruba in showing scope ambiguities, which provides support for Howell’s (2013) hypothesis that the lack of scope ambiguities in Yoruba is due to a lack of modified numeral measure phrases
- Thus, there is evidence that the difference between comparison in Tswefap and Yoruba is due to differences in lexical items, not a grammatical parameter setting

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