

## Basaá property concepts and the ontology of gradability

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**Intro.** Theories of gradability and comparison (e.g., Kamp 1975 and many following) have been developed with data from familiar languages with adjectives at their core, e.g., (1) and (2).

(1) We are strong.

(2) We are stronger than them.

In many languages, however, the main predicate in translationally equivalent constructions – the *property concept* (PC) (cf. Dixon 1982) – is not an adjective. Francez & Koontz-Garboden (2017; FKG) examine constructions in several languages with **nominal PCs** and find predicative and comparative constructions have a different morphosyntax: **possession**. Take e.g., Hausa: equivalents of predicative sentences like (1) use nominal PCs (3) and are encoded like possessives (4).

(3) *Munà dà karfī.*

we.CONT with strength

‘We are strong.’ (Newman 2000:224)

(4) *Yārinỳà tanà dà zōbè.*

girl she.CONT with ring

‘The girl has a ring.’ (Newman 2000:222)

FKG argue that this morphosyntax is conditioned by the denotation of the PC noun: While adjectives denote sets of ordinary individuals, PC nouns denote qualities, i.e., mass-type denotations (Link 1983), so that e.g., *karfī* in (3) denotes a mereologically ordered set of portions of strength; such a meaning can be related to an entity by the possessive relation but *not* by predication.

**Problem.** While the compositional semantics of sentences such as (1) (and their comparative counterparts, (2)) have been well studied, truth-conditionally equivalent ones with nominal PCs such as (3) – and the lexical semantics of the property concept nouns that underpin them – are much less studied or understood. While there are various proposals for the semantics of adjectives, from degree-based (Cresswell 1976) to delineation-based (Kamp 1975; Klein 1980) accounts, no analysis has their lexical semantics built on objects that are natural for the denotations of PC nouns like *wisdom* (5b), which on the other hand receive a straightforward treatment as mereologically and size-ordered sets of abstract portions, in the spirit of Link (1983), a treatment that keeps moreover with the fact that they exhibit mass noun behavior (as shown by FKG: Chapter 6).

(5) a. Kim is wise.

b. Kim has wisdom.

This contrast between the treatment of property concept adjectives and nouns leads to minimal pairs like (5), with truth-conditionally equivalent sentences restricting models in different ways. Such a state of affairs, while perhaps not the null hypothesis, is also not unknown crosslinguistically. Languages routinely express the same meaning in model-theoretically different ways, e.g., the way to say that *Kim is evil* in Ulwa is to attribute blackness to Kim’s liver (FKG, chap. 1).

**In this talk** however, drawing on data from (i) degree modification; (ii) degree questions; and (iii) comparatives in Basaá (Bantu; Cameroon) and English, we argue that the truth-conditional identity of sentences like (5a,b) *must* be captured model-theoretically, i.e., adjectives like *wise do* have the same type-theoretic denotation as have+PC nominals like *have wisdom*, an intuition suggested by Menon and Pancheva (2014), and one which we make explicit semantic arguments for.

**Property concept lexemes in Basaá** fall into three classes, as outlined in Hyman et al. (2012) and Jenks et al. (2018): i) a small set of genuine adjectives; ii) a class of nouns that predicate like adjectives (but otherwise distribute like nouns); and iii) a class of ‘quality’ nouns like English *wisdom*, that are possessed in predication. The adjectives differ from nouns in their modificational behavior, while the two nominal classes differ from one another in their mode of predication.

**Degree modification and questions** in English treat adjectives and nouns, including PC nominals,

- differently from one another: nouns require *much*-support; adjectives do not (at least overtly):
- (6) a. Kim has **very much** wisdom. (7) a. Kim is **very** tall.  
 b. **How much** wisdom does Kim have? b. **How** tall is Sandy?

Whether this is due to the morphosyntactic properties of comparatives, as Bresnan (1973) and subsequent syntactic work claims, or a consequence of semantic differences between nouns and adjectives, as Bochnak (2015) hints at, is open to debate. What *is* clear is that the contrast is not universal, as it fails to materialize in Basaá: the gradable modifier *ngandak* ‘very’ – which has the syntax of a VP adverbial – modifies both predicative adjective VPs and have+PC nominal VPs in an identical fashion, as shown in (8) and (9):

- (8) *hí-nuní hí hí yé hi-k’ɛŋí ngandak.*  
 19-bird 19.DEM 19.AGR be 19-big very  
 ‘That bird is very big.’ Adj
- (9) *Kim à gweé nguy ngandak.*  
 Kim AGR has strength very  
 ‘Kim is very strong.’ PC nominal

Similarly, degree questions are formed identically, without anything like the intervention of *much*:

- (10) *kim a ye ŋk’éŋí kii !kii?*  
 kim AGR be big how what  
 ‘How big is Kim?’
- (11) *kim gweé nguy kii !kii?*  
 kim has strength how what  
 ‘How strong is Kim?’

While the source of the difference between English adjectival (6) and nominal (7) intensification and degree questions (10-11) might plausibly be syntactic or semantic, identity like that seen in Basaá entails semantic – specifically model-theoretic – equivalence. These two constructions treat the two classes identically; this demands a uniform treatment, which is available only if Basaá adjectives are type-theoretically identical to the have+PC nominal VP.

**(Sub)comparatives.** Further, the claim that these PCs are type-theoretically identical comes from comparative subdeletion, a construction in which the degree to which one or more object has two distinct properties introduced by two different property concept lexemes is compared, (12):

- (12) The desk is **higher** than the door is **wide**.

Such sentences are canonically treated as entailing comparison of degrees introduced by the the distinct adjectives in the target and standard phrases. If have+PC nominal and adjectival PC sentences have model-theoretically identical meanings, then they should be mixable in subcomparative constructions, provided that they do not give rise to incommensurability (Kennedy 1997:43ff) and provided the syntax is licensed (e.g., they are precluded in English by a constraint on syntactic identity; Bresnan 1973:310). Importantly, we argue that the ill-formedness of (13) and similar sentences is down to syntactic ungrammaticality, rather than to type-theoretic mismatch between the ontology of gradability in the adjective and the pc nominal, as the Basaá (14) is acceptable:

- (13) \*Kim is **bigger** than he **has strength**. (14) *kim a ye ŋk’éŋí lɔɔ kii a gwee nguy.*  
 kim AGR is big pass as he has strength  
 ‘Kim is bigger than he is strong (=has strength).’

**Main take-away.** A unified analysis of the semantics of *ngandak* modification, degree question formation, and (sub)comparison are all possible if Basaá adjectives and have+PC nominals have the same semantic type. Whether this is as degree relations (as in Cresswell 1976 and others) or as sets of individuals possessing some portion of a quality (introduced by the PC nominal in the have+PC nominal construction), the idea is that: i) *ngandak* restricts the compared degree or portion to be high in the scale/ordering of portions; ii) *kii !kii* questions a degree or portion; and iii) comparison introduces an ordering between degrees or portions. Although we consider (de-)merits of the two kinds of theory, our point here is simply that, whichever the right approach, Basaá shows that the adjective and the have+PC noun construction must be identical in semantic type.