

# On the lexical semantics of property concept nouns in Basaá<sup>1</sup>

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**Abstract.** This paper considers the link between lexical category and lexical semantics, examining variation in the category of property concept (PC) words (Dixon, 1982; Thompson, 1989)—words introducing the descriptive content in translational equivalents of sentences whose main predicate is an adjective in languages with large open classes of them. Francez and Koontz-Garboden (2015) conjecture that nominal PC words might only have mass-type denotation (conceived in the spirit of Link 1983), as diagnosed by possession in predication (e.g., *Kim has beauty/#Kim is beauty*). In Basaá, a class of PC nominals we call *substance nouns* trigger possession in predication, while a class we call *adjectival nouns* do not, thereby falsifying Francez and Koontz-Garboden’s conjecture. We offer several diagnostics that confirm the substance denotation for the substance nouns, and an individual-characterizing denotation for the adjectival nouns, speculating on whether such nouns have a degree semantics, and whether they represent a crosslinguistically rare category or not.

**Keywords:** lexical categories; semantic variation; adjectives; property concepts; mass nouns

## 1. Introduction: The meaning of lexical categories

The nature of the major lexical categories is among the most foundational yet poorly understood areas of grammar (Baker and Croft, 2017). Among the outstanding questions is whether there might be a link between lexical categories, which play a clear role in syntax and morphology, and the kind of meaning a word has. Although this is a question of longstanding interest, it is rarely discussed in the model-theoretic literature, save for the occasional suggestion that there might be something to say (see e.g., Bach et al. 1995; von Stechow and Matthewson 2008: 152–153; Kaufman 2009: 32; Koch and Matthewson 2009: 129). This paper is a modest contribution toward development of a program of study in this area. We focus our attention on what Francez and Koontz-Garboden (2015, 2017) call property concept sentences—sentences like (1) whose main predicate is an adjective or, as with (2), whose main predicate is not an adjective but is translated by a sentence whose main predicate *is* an adjective in languages like English.

(1) Your hair is long.

(2) ‘*Oku loloa ho ‘ulu.*  
IMP long your hair  
‘Your hair is long.’

(Tongan; Koontz-Garboden 2007: 117)

We call the word in property concept sentences responsible for introducing the descriptive content (*long* in (1), *loloa* in (2)) the property concept (PC) word. Thanks to Dixon’s (1982;

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2004) work, it is now widely known that property concept words vary in lexical category (both internal to and across languages). In (1), for example, *long* is an adjective, while *loloa* in (2) is a verb (see Koontz-Garboden 2007).

Property concept words also vary in their lexical semantics. Our focus is on a two-way distinction based on behavior in predication pointed to by Francez and Koontz-Garboden (2015). They observe that there are PC words that require possessive morphosyntax in predication (possessive-predicating PC words) and those that do not (non-possessive predicating PC words), as illustrated for Spanish in (3) and (4) respectively.

- |     |  |     |   |
|-----|--|-----|---|
| (3) | <i>Juan tiene miedo.</i><br>Juan has fear<br>'Juan is scared.' | (4) | <i>Juan es alto.</i><br>Juan is tall<br>'Juan is tall.' |
|-----|--|-----|---|

Following Francez and Koontz-Garboden (2015), we take this contrast as diagnostic of a difference in the kind of meaning the PC words in the two classes of construction have: (i) those like *miedo* 'fear', which characterize substances (*substance*-type meanings, following Link 1983), and (ii) those like *alto* 'tall', which characterize individuals—specifically, those individuals that *have* the substance (e.g., a contextually salient portion of height) in question.

Concomitant with the difference in meaning of the PC words in (3) and (4), reflected in the morphosyntax of predication, is a difference in lexical category. While the substance-characterizing PC word in (3) is a noun, the individual-characterizing PC word in (4) is an adjective. Cross-classifying the adjective and noun categories with this two-way semantic typology leads to the picture in (5), with two gaps.

- |                  |   |                                      |
|------------------|---|--------------------------------------|
| (5)              | Nominal and adjectival property concept denotations |                                      |
|                  | <i>Individual-characterizing</i>                    | <i>Substance-characterizing</i>      |
| <i>Adjective</i> | English, Spanish adjectives                         | ???                                  |
| <i>Noun</i>      | ???   | PC nominals like <i>miedo</i> 'fear' |

Francez and Koontz-Garboden (2017: Chapter 5) argue that the gap in substance-characterizing adjectives depicted in the top right corner of (5) is genuine and principled. Substance denotations are not meanings well suited to the main function of adjectives—to act as attributive modifiers. Assuming that adnominal modification selects a subset of the denotation of the modified noun, Francez and Koontz-Garboden argue that there are no nouns with meanings that substance-characterizing adjectives could non-trivially modify.

In the sample of languages that Francez and Koontz-Garboden (2015) examined, there were no languages with non-possessive predicating PC nominals, giving rise to the conjecture that the gap on the bottom left of (5) was genuine. The implication of this gap would be that nominal property concept words were *always* substance-characterizing, and never individual-characterizing. Were this conjecture true, it would have implications for the semantics of nounhood. Yet in this paper we show that in Basaá (Bantu; Cameroon), PC nouns can have both substance-characterizing and individual-characterizing denotations. The conclusion is that nominal property concept words do not uniformly have substance-characterizing denotations.

We begin with background on the semantic typology of property concept words, discussing the two kinds of meanings that these words can have. We then turn to the Basaá case study, in order to determine (i) the category of Basaá PC words, and (ii) their lexical semantics. We start by giving three arguments for the nominal categoriality of the relevant class of PC words. Drawing on a range of novel diagnostics and by contrasting these PC words with genuine substance-characterizing ones, we then show that rather than characterizing portions of substance, they instead characterize sets of individuals. We conclude with remarks on what exactly the individual-characterizing nature of the relevant class of Basaá PC nominals is, and also suggest that a comparable class of nouns exists in English. We close with discussion of the consequences of our observations for the understanding of the link between lexical category and lexical semantics.

## 2. Possessive-predicating PC nominals and their substance denotations

Francez and Koontz-Garboden (2015) observe that nominal property concept words entail possessive morphosyntax for their sample of languages. Although we will argue below that there is a class of PC words in Basaá that falsify this generalization, there is also a class of PC words in the language that conforms with it. We call this class of words *substance nouns* (SNs), and they include *mbɔm* ‘luck’; *nguy* ‘strength’; *másódá* ‘luck’; *ɲém* ‘courage’; *hêmlɛ* ‘hope/faith’. That such words are nominal in Basaá is uncontroversial, particularly given the fact that they are lexically associated with a noun class rather than agreeing with other nouns, fail to attributively modify nominals, can be used as the arguments of verbs, and have mass noun properties.

SNs do not behave like common nouns in predicational contexts, as expected given Francez and Koontz-Garboden’s (2015) observations. Predication of a normal Basaá count noun (details of which are discussed further in §3) is copular, as shown in (6).

- (6) *a ye m-alêt.*  
 1.AGR COP 1-teacher  
 ‘He is a teacher.’ (Hyman et al. 2012:8)

Unlike with normal count nouns, attribution of a SN to an individual invokes the morphosyntax of possession. That is, the same morphosyntax—the verb *gweé* ‘have’—which is required to attribute the possession of some entity to another, whether inalienably (7a) or alienably (7b), is used to attribute the substance described by a SN to an individual, as shown in (8).<sup>2</sup>

<sup>2</sup>In Basaá, ‘have’ is morphologically complex, literally ‘be-with’, and has the paradigm in (i).

(i) Tense paradigm for *bá-nâ* ‘have’

Infin	Past3	Past2	Past1	Pres	Fut1	Fut2	Fut3
<i>bánâ</i>	<i>báná</i>	<i>béena</i>	<i>bákná</i>	<i>gweé</i>	<i>m!báná</i>	<i>gá!báná</i>	<i>abáná</i>

- (7) a. *í tēble íní í gwé<sup>1</sup>é ma-koo mánâ* (8) *a gweé ma-sódá*  
 AUG 7.table DEM AGR have 4-feet four 1.AGR have 6-luck  
 ‘This table has four feet.’ ‘(S)he is lucky.’  
 b. *Kim a gweé<sup>1</sup>n-dáp*  
 Kim AGR has 9-house  
 ‘Kim has a house.’

Drawing on the mereological approach to mass terms in Link (1983), Francez and Koontz-Garboden (2015, 2017) treat the denotations of possessive-predicating PC words as related to the denotations of familiar substance mass terms such as *gold* and *sand*.<sup>3</sup> For example, *ɲguy* ‘strength’ has such a denotation, as shown in (9), where *p* is a variable over portions of abstract matter, and *strength'* describes the property which characterizes all portions of strength.

- (9)  $[[\eta g u y]] = \lambda p [strength'(p)]$

Evidence that SNs have a mass-type semantics is offered in §4.1.

A substance-characterizing denotation accounts for the possessive morphosyntax used with these PC nominals. Substances, as Francez and Koontz-Garboden discuss, cannot be predicated of individuals using a copula because substances are sets of abstract portions, not sets of individuals. To the extent that any meaning is generated in ordinary copular predication with substance-characterizing words, it is an odd or metaphorical one, a fact illustrated by (10).<sup>4</sup>

- (10) a. Kim is strength.  $\neq$  Kim is strong.  
 b. Kim has strength. = Kim is strong.

Our hypothesis, following the treatment of similar examples in other languages in Francez and Koontz-Garboden (2015), is that the use of possessive morphosyntax with such PC nominals in predication is a direct reflection of their semantics. The idea is that because a substance-characterizing PC word does not characterize a set of individuals, a relation has to be introduced to relate substances to individuals in order to attribute the substance to an individual. Francez and Koontz-Garboden call the general idea that a substance can be related to an individual with the semantics of possession *substance possession*, defining it as in (11).

- (11) **Substance possession:** For any individual *a* and substance *P*, *a* has *P* iff  
 $\exists p [P(p) \ \& \ \pi(a, p)]$

In summary, the morphosyntax of possession with nominal PC terms arises due to the underlying semantics of substance possession.

<sup>3</sup>See Koontz-Garboden and Francez (2010) for an inferior analysis in terms of Chierchia and Turner’s (1988) property theory.

<sup>4</sup>In fact, in Basaá there is a group of ‘have’-predicating PC nominals which allows ‘be’-predication, but only in emphatic contexts. We take these cases to be direct ‘be’-predication of a SN, equivalent to English expressions like *Kim IS beauty (incarnate)*, where the substance is predicated directly of the subject, meaning that Kim is literally a portion of beauty.

No such possessive semantics is at play with property concept sentences showing normal predicative morphosyntax, e.g., those with adjectives. The precise semantics for the adjectival predicates in such sentences remains an open question (see e.g., Cresswell 1977; Klein 1980; von Stechow 1984; Heim 1985; Kennedy 1997; Barker 2002; Rett 2014; Menon and Pancheva 2014; Wellwood 2015; Burnett 2016, among others). For our purposes, it does not matter what the correct theory is. What matters is simply that adjectives do not denote substances. This is the case on all theories of adjectives (and is a point explicitly argued by Francez and Koontz-Garboden 2017: Chapter 5). In one way or another, the adjectival word comes to characterize a set of individuals in some context, which can enter into ordinary processes of non-verbal predication. The headline finding of this paper is that contrary to Francez and Koontz-Garboden's conjecture, nominal PC words can have a meaning of this type, whatever its precise formal details might be.<sup>5</sup> In order to show this, we now make the case for the nominal status of ANs, and then show that they unequivocally have individual-characterizing meanings.

### 3. The lexical category of Basaá ANs

The class of PC words in Basaá of primary interest, is what Hyman et al. (2013) call *nominal adjectives* and which we call here *adjectival nouns* (ANs), in view of the fact that they are nouns, following Hyman (2003).<sup>6</sup> ANs constitute a large and open class of PC words in Basaá, with at least 100 members. Below we demonstrate that while ANs form a class of PC words that are demonstrably nominal in lexical category, they are not substance-characterizing, but rather characterize sets of individuals, falsifying the conjecture discussed in §1. In this section we argue for their nominal status, turning to their meaning in the section that follows.

Like most Niger-Congo languages, Basaá nominals are distributed into a rich set of noun classes. Which noun class a particular noun belongs to can be determined based on the initial prefix of the noun as well as subject agreement and DP-internal concord. Members of each of these classes are provided in Table 1, drawn from Hyman (2003: 263) with some simplifications in the representation of prefixal morphology. The numerals in the left column refer to the numbering system for Bantu noun classes standard since Meinhof (1906). These numerals label each combination of number and gender a separate class. Hyman (2003) discusses the phonological and morphological traits of the prefixal morphology in detail, and also provides detailed paradigms for DP-internal concord and subject agreement. The example below illustrates both DP-internal concord and subject agreement—the verb and DP internal modifiers agree with the head noun *nuní* ‘bird’ in noun class.

- (12) *dí-nuní dí-tân dí dí n' tóp hémbí*  
 13-bird 13.five 13.those 13.SBJ sing 19.song  
 ‘Those five birds are singing a song.’

<sup>5</sup>It is possible, as suggested by Beck et al. (2010); Bochnak (2013, 2015) that there might be variation in the kinds of individual-characterizing meanings that there are. Quite how Basaá ANs fit into this picture is an interesting question for future research.

<sup>6</sup>Our ANs are not to be confused with Hyman et al.'s adjectival nouns, which correspond to our substance nouns (SNs). Terminologically speaking, our adjectival nouns are their nominal adjectives, and our substance nouns are their adjectival nouns.

Table 1: Noun classes in Basaá

Class	Singular	Plural		Singular	Plural	
1/2	<i>mudaá</i>	<i>bodaá</i>	‘woman’	<i>mut</i>	<i>bot</i>	‘man’
3/4	<i>m-pék</i>	<i>mim-pék</i>	‘bag’	<i>n-tómbá</i>	<i>min-tómbá</i>	‘sheep’
3a/6	<i>nyɔ</i>	<i>ma-nyɔ</i>	‘mouth’	<i>wɔɔ</i>	<i>mɔɔ</i>	‘hand’
5/6	<i>li-pan</i>	<i>ma-pan</i>	‘forest’	<i>j-alá</i>	<i>m-alá</i>	‘crab’
7/8	<i>tɔŋ</i>	<i>bi-tɔŋ</i>	‘horn’	<i>y-oó</i>	<i>gw-oó</i>	‘yam’
9/10	<i>pén</i>	<i>pén</i>	‘arrow’	<i>ŋ-gwɔ</i>	<i>ŋ-gwɔ</i>	‘dog’
9/6	<i>kíŋ</i>	<i>ma-kíŋ</i>	‘neck, voice’	<i>n-dáp</i>	<i>man-dáp</i>	‘house’
19/13	<i>hi-tám</i>	<i>di-tám</i>	‘kidney’	<i>hi-nuní</i>	<i>di-nuní</i>	‘bird’

Table 2: NAs are found in all noun classes (Hyman et al., 2013: 2)

Class	Num.	NA	Gloss	Class	Num.	NA	Gloss
1	sing.	<i>n-lám</i>	‘beautiful (sg.)’	2	pl.	<i>ba-lám</i>	‘beautiful (pl.)’
3	sing.	<i>n-laŋgá</i>	‘black (sg.)’	4	pl.	<i>min-laŋgá</i>	‘black (pl.)’
5	sing.	<i>li-múgê</i>	‘taciturn (sg.)’	6	pl.	<i>ma-múgê</i>	‘taciturn (pl.)’
7	sing.	<i>lɔŋgê</i>	‘good (sg.)’	8	pl.	<i>bi-lɔŋgê</i>	‘good (pl.)’
9	sing.	<i>mbóm</i>	‘big (sg.)’	10	pl.	<i>mbóm</i>	‘big (pl.)’
19	sing.	<i>hi-peda</i>	‘small (sg.)’	13	pl.	<i>di-peda</i>	‘small (pl.)’

In example (12), the noun *dí-nuní* ‘birds’ controls agreement on the numeral, demonstrative, and the verbal prefix. We take lexically determined membership in one of the noun classes in Table 1 and the ability to control agreement to be definitional criteria for nounhood in Basaá.

All earlier descriptions, including Dimmendaal (1988); Hyman (2003); Hyman et al. (2013), agree that the PCs we are calling ANs are nouns. Evidence for their nominal categorization comes from the fact that they have lexically determined inherent noun class (from Hyman et al. 2013), as described above. This is evidenced by the fact that ANs are found in all noun classes, as illustrated by Table 2. Further evidence for their nominal status comes from the fact that when they occur DP-internally, ANs subordinate the noun they modify via a connective particle, reminiscent of English *of*, and control agreement on higher adnominal modifiers (13).

- (13) a. *lí-múgê<sup>1</sup> lí hí-nuní lí lí n<sup>1</sup>tóp hémbí*  
 5-quiet 5.CON 19-bird 5-that 5.SBJ sing 19.song  
 ‘That quiet bird is singing.’
- b. *má-múgê<sup>1</sup> má dí-nuní máá má n<sup>1</sup>tóp hémbí*  
 6-quiet 6.CON 13-birds 6-that 6.SBJ sing 19.song  
 ‘Those quiet birds are singing.’

The connective particle itself also agrees with the AN, as shown by Table 3; note that the connective which appears in this construction can be purely tonal, a low tone in class 1 and 9, and a high tone in class 3 and 7 (Hyman et al., 2013: ex. (10)). This is true generally of other

Table 3: Agreement of the connective with ANs

CI	AN	of	N		CI	AN	of	N	
1	<i>n-lám</i>		<i>hi-nuní</i>	‘beautiful bird’	2	<i>ba-lám</i>	<i>ba</i>	<i>dí-nuní</i>	‘beautiful birds’
3	<i>n-laygá</i>		<i>hi-nuní</i>	‘black bird’	4	<i>min-laygá</i>	<i>mí</i>	<i>dí-nuní</i>	‘black birds’
5	<i>li-múgê</i>	<sup>l</sup> <i>lí</i>	<i>hi-nuní</i>	‘quiet bird’	6	<i>ma-múgê</i>	<i>má</i>	<i>dí-nuní</i>	‘quiet birds’
7	<i>lójgê</i>		<i>hi-nuní</i>	‘good bird’	8	<i>bi-lójgê</i>	<sup>l</sup> <i>bí</i>	<i>dí-nuní</i>	‘good birds’
9	<i>mbóm</i>		<i>hi-nuní</i>	‘big bird’	10	<i>mbóm</i>	<i>í</i>	<i>dí-nuní</i>	‘big birds’
19	<i>hi-peda</i>	<i>hí</i>	<i>hi-nuní</i>	‘small bird’	13	<i>di-peda</i>	<i>dí</i>	<i>dí-nuní</i>	‘small birds’

DP internal modification where the modifier is nominal, as with possessive DPs and noun-noun compounds (Hyman et al., 2013). One important point to note about the construction illustrated in Table 3 is that the AN and N always agree in number, even if they occur in different genders or noun classes.

Further evidence for the nominality of ANs comes from the existence of a separate class of true adjectival PCs (adjectives) in Basaá. Such genuine adjective is illustrated in (14), where the adjective *kéjǐ* ‘big’ does not control agreement on the noun or subject auxiliary, but transparently reflects the noun class of the noun it modifies. Further, it modifies the head noun without a connective, unlike nominal modifiers (with AN or not), described previously.

- (14) *hi-nuní hi-kéjǐ hí hí n<sup>l</sup>tóp hémbí*  
 19-bird 19-big 19-that 19.SBJ sing 19.song  
 ‘That big bird is singing.’

The number of adjectives in Basaá is relatively small, so Basaá is therefore like many languages of the world in having a closed adjective class (Hyman et al., 2013). Crucially for our purposes, we will see below that true adjectives and ANs cannot be distinguished semantically, so they are only distinguished by their syntactic category, revealed in their morphosyntactic behavior.

#### 4. The lexical semantics of Basaá ANs

Having demonstrated the nominality of ANs, we now examine their semantics. Given the discussion above, an obvious starting point is asking how they behave in predication. Here, as already mentioned, we find behavior different from that observed with nominal PCs elsewhere, both from SNs in Basaá, discussed above, and the nominal PCs from other languages discussed in Francez and Koontz-Garboden (2015).

Basaá has a copula *ba* which occurs as the main verb in sentences with a variety of non-verbal predicates.<sup>7</sup> This copula occurs with predicate nominals (15a), locatives (15b), and genuine

<sup>7</sup>The verb *ba* ‘be’ is characterized by extensive suppletion, as shown in (i).

(i) Tense paradigm for *ba* ‘be’

Infinitive	Past3	Past2	Past1	Pres	Fut1	Fut2	Fut3
<i>ba</i>	<i>ba</i>	<i>bée</i>	<i>bák</i>	<i>ye</i>	<i>m<sup>l</sup>ba</i>	<i>gá<sup>l</sup>ba</i>	<i>a<sup>l</sup>ba</i>

adjectives (15c), along with, crucial for our purposes, ANs (15d):

- (15) a. *Victor a ye m-alêt*  
Victor 1.SUB be 1-teacher  
'Victor is a teacher.' (predicate nominal)
- b. *hí-nuní hí hí yé í kedé 'é*  
19-bird 19.that 19.SUB be LOC inside tree  
'That bird is inside the tree.' (e.g. in a hole) (locative)
- c. *hí-nuní hí hí yé hi-kéjǎ*  
19-bird 19.that 19.SUB be 19-big  
'That bird is big.' (adjective)
- d. *hí-nuní hí hí yé li-mugê*  
19-bird 19.that 19.SUB be 5-quiet  
'That bird is quiet.' (adjectival noun)

We assume that copular predication in contexts like those above is a transparent indication that the following predicate characterizes a set of ordinary individuals (cf. Partee 2002). Thus, the fact that adjectives and ANs are predicated with a copula is a transparent indication that adjectives and AN denote sets of ordinary individuals, like nominal and locative predicates. Below we present three additional arguments for this claim.

#### 4.1. Atomicity

In this section we illustrate that ANs and SNs are distinct in terms of atomicity: while ANs have atomic denotations, and are hence count nouns, SNs have non-atomic denotations and behave like mass nouns. Mass-like denotations are expected for SN given their substance-based semantics described in §2.

The simplest evidence that ANs are count nouns while SNs are mass nouns comes from the number invariance of SNs. In §3, it was shown that ANs reflect the number of the noun they modify in the AN-of-N construction (Table 3). Thus, a distinction exists between *nláám* 'beautiful' and *baláám* 'beautiful' depending on whether the noun is singular or plural in (13). By contrast, SNs do not inflect for number at all. This can be seen in both adnominal modifying and predicative environments. Beginning with attributive environments, the data in (16) demonstrate that like ANs, nominal modification with SNs requires a connective. But while ANs precede the connective, controlling agreement on higher modifiers (13), SNs follow the connective, and the modified noun controls agreement. What is crucial for our current purposes is that unlike ANs, SNs do not reflect the number of the noun which they modify. This is illustrated by (16), where the SN *ǰgûy* 'strength' is invariant regardless of whether it is modifying a singular or plural noun:

- (16) a. *hi-nuní hí ǰgûy hí n'tóp hémbí*  
19-bird 19.CON 9.strength 19.SBJ sing 19.song  
'The strong bird is singing'

Table 4: Substance nouns (SNs) in Basaá

Class	N	of	SN	
1	<i>hi-nuní</i>	<i>hí</i>	<i>máaŋgé</i>	‘baby bird’ (bird of child)
3	<i>hi-nuní</i>	<i>hí</i>	<i>ń-saŋ</i>	‘peaceful bird’ (bird of peace)
4	<i>hi-nuní</i>	<i>hí</i>	<i>mí-yaó</i>	‘likable bird’ (bird of charm)
5	<i>hi-nuní</i>	<i>hí</i>	<i>lí-han</i>	‘mean bird’ (bird of meanness)
6	<i>hi-nuní</i>	<i>hí</i>	<i>má-sóda</i>	‘lucky bird’ (bird of chance)
7	<i>hi-nuní</i>	<i>hí</i>	<i>ságlá</i>	‘annoying bird’ (bird of annoyance)
8	<i>hi-nuní</i>	<i>hí</i>	<i>bí-sagda</i>	‘unsteady bird’ (bird of confusion)
9	<i>hi-nuní</i>	<i>hí</i>	<i>ŋgúy</i>	‘strong bird’ (bird of strength)

- b. *dí-nuní dí ŋgúy dí ń'tóp hémbí*  
 13-birds 13.CON 9.strength 13.SBJ sing 19.song  
 ‘The strong birds are singing’

Furthermore, while each lexical SN can be morphologically singular or plural, each individual SN is number-invariant, occurring in either a singular or plural noun class, as shown by the data in Table 4. Thus, the singular class 3 *ńsaŋ* ‘peace’ has no class 4 plural counterpart *\*mísaŋ*. Likewise, the plural class 4 *míyaó* ‘charm’ has no singular class 3 counterpart *\*nyaó*. The difference between ANs and SNs in the ability to mark number is thus directly manifested in DP-internal environments: only ANs reflect the number of the noun they modify.

The number invariance of SNs also contrasts with ANs in predicational environments. Like adjectives and predicate nominals, ANs typically reflect the number of the subject:

- (17) *dí-nuní díí dí yé ma-múgê*  
 13-bird 13.that 13.SUB be 6-quiet  
 ‘Those birds are quiet.’

The subject in (17) is plural, thereby triggering class 6 on the AN in this position.<sup>8</sup> In contrast, SNs do not exhibit number agreement with the subject of ‘have’ in predicational environments, as shown by (18).

- (18) a. *a gweé \*n/mi-yáo*  
 1.AGR have 3(SG)/4(PL)-charm  
 ‘(S)he is likable.’  
 b. *bá gwe' é \*n/mi-yáo*  
 2.AGR have 3(SG)/4(PL)-charm  
 ‘They are likable.’

<sup>8</sup>Number agreement in the copular construction is not obligatory when the subject is plural. As discussed in Hyman et al. (2013), with predicates that allow collective readings, singular predicates overtly indicate a collective reading while plural predicates occur with distributive readings.

Thus, a corollary of the general number-invariance of SNs is their inability to agree with nouns in number in both attributive and predicational environments. These diagnostics we believe are tied to atomicity—the question whether there are atomic parts in the denotation of the noun, as is the case with count nouns, or not, as is the case with mass nouns (Link, 1983). Consistent with our claim that SNs are substance-characterizing, then, these facts point to a non-atomic denotation for SNs. ANs, consistent with our claim that they characterize sets of (atomic) individuals, behave in the opposite manner.

A more direct diagnostic for this distinction comes from numerals: while numerals can combine with ANs, they cannot with SNs, as shown by (19a,b) respectively.<sup>9</sup>

- (19) a. *ma-múgέ* <sup>1</sup>*má*      *dí-nuní* *mátân*  
 6-quiet 6.6.CON 13-bird 6.five  
 'five quiet birds'
- b. \**miyáo* (*míntân*) *mí*      *hí-nuní* (*míntân*)  
 4-charm (4.five) 4.CON 13-bird (4.five)  
 (intended: \*'five charms of the bird')

In (19a), *mátân* 'five' agrees with the AN *ma-múgέ* 'quiet', and as such the AN must preserve or share the count-status of the head noun it modifies. In contrast, (19b) illustrates that SNs cannot combine with numerals when they serve as the head of the noun phrase. As countability is a standard diagnostic for atomicity (and thereby count versus mass status, e.g. Rothstein 2010), we take the distribution of numerals to confirm that ANs have atomic denotations (and are count nouns) while SNs have non-atomic ones (and are mass), consistent with the claim that the former have individual-characterizing denotations, while the latter denote substances.

#### 4.2. Weak quantifiers

Additional circumstantial evidence for the individual-characterizing denotation for ANs comes from the syntactic behavior of various quantifiers in Basaá. Landman (2003) argues that while strong determiners are generalized quantifiers, i.e. interpreted as relations between sets (Montague 1973; Barwise and Cooper 1981) indefinite determiners have adjectival meanings, and are functions from nominal denotations to a subset of the nominal denotation with restricted cardinality. For example, while *birds* denotes the set of any plurality of birds, whether two or ten thousand, *several birds* denotes a much more restricted set of bird pluralities—namely those comprised of say, 3-10 atomic bird individuals. It turns out that in Basaá weak quantifiers, by contrast with strong quantifiers, pattern like ANs in several ways. This behavior, we argue, makes sense if weak quantifiers and ANs both characterize sets of individuals. The former is consistent with Landman's claims, the latter with our claim about the semantic nature of ANs.

<sup>9</sup>That the numeral is modifying the AN in (19a) and the SN in (19b) is shown by agreement—the numeral agrees in noun class with the AN in (19a) and the SN in (19b), as is typical for adnominal numeral modifiers in the language generally.

NP-internally, weak quantifiers in Basaá pattern just like ANs. This is demonstrated by the data in (20), which shows that such quantifiers head the NPs they determine, triggering use of a linker particle the noun class agreement of which they control.

- (20) a. *ɲgandak í dínuní í yé mɪnlaŋgá*  
 3.many 3 19.birds 3.AGR be 4.black  
 ‘Many birds are black.’
- b. *ndek dínuní í yé mɪnlaŋgá*  
 3.few (3)-19.birds 3.AGR be 4.black  
 ‘Few birds are black.’
- c. *joga lí dínuní lí yé mɪnlaŋgá*  
 5.several 5 19.birds 5.AGR be 4.black  
 ‘Several birds are black.’
- d. *pɛs í dínuní í yé mɪnlaŋgá*  
 3.half 3 19.birds 3.AGR be 4.black  
 ‘Half the birds are black.’

Unlike weak quantifiers, strong quantifiers do not pattern as ANs. The actual behavior of strong quantifiers is heterogeneous, as evidenced by the data in (21), where *hígíí* ‘every’ appears prenominally and *códísó* ‘all’ appears postnominally.

- (21) a. *hígíí hinuní hí yé nlaŋgá*  
 19.every 19.bird 19.AGR be 3.black  
 ‘Every bird is black.’
- b. *dínuní kódísó<sup>1</sup>dí yé mɪnlaŋgá*  
 AUG-13.birds all 13.AGR be 4.black  
 ‘All birds are black.’

In both cases, however, the quantifiers behave differently from the weak quantifiers in (20), in that neither of them heads the NP they determine or controls agreement. This is shown in (21a) by the lack of a linker particle and by the fact that *hígíí* ‘every’ agrees with the head noun ‘bird’. The quantifier *códísó* ‘all’ in (21b) simply does not agree, nor is there any question of it being in head position, as it is postnominal. This contrast in the behavior of weak and strong quantifiers makes sense if weak quantifiers and ANs are in the same semantic class (at some level), and if this class is individual-characterizing (as Landman independently argues for most weak quantifiers), the idea being that the head noun (whether AN or weak quantifier) composes with the post-linker noun through some form of predicate modification (as argued for weak quantifiers by Landman 2003: 2).

We have already seen that ANs are copular-predicating, as expected for words that characterize sets of individuals. The same is expected of weak quantifiers on Landman’s theory. This prediction is borne out, as shown by (22).<sup>10</sup>

<sup>10</sup>There are two exceptions to this, *ɲgim* ‘some’ and *tɔ* ‘no’. In the case of quantifiers like the latter, Landman (2003: 12) argues for a special treatment on independent grounds. An explanation for the behavior of Basaá *ɲgim* ‘some’ requires further investigation.

- (22) a. *dínuní tíní dí yé ngandak*  
birds these AGR be a.lot  
'These birds are many.'
- b. *dínuní tíní dí yé ndek*  
birds these AGR be few  
'These birds are few.'
- c. *dínuní tíní dí yé joga*  
birds these AGR be several  
'These birds are several.'
- d. *dínuní tíní dí yé pēs*  
birds these AGR be half  
'These birds are half.'

Further, as expected if strong quantifiers are not individual characterizing, but rather have some other kind of non-predicative denotation (for example relations between sets, as Landman argues), then we expect strong quantifiers to be unacceptable in predicative environments, unlike weak quantifiers. This contrast is borne out, as evidenced by the data in (23).

- (23) a. \**dínuní tíní dí yé hígií*  
birds these AGR be every  
\*'These birds are every.'
- b. \**dínuní tíní dí yé códíśō*  
birds these AGR be all  
\*'These birds are all.'

To reiterate, the basic observation is that weak quantifiers and ANs pattern together in some key ways. This behavior makes sense if they have the same kind of denotation, and if that denotation is an individual-characterizing one, as Landman argues for weak quantifiers on independent grounds, and as other diagnostics in this paper independently point to for ANs.

#### 4.3. Pronominal anaphora

A final argument for our claim that ANs characterize individuals comes from pronominal anaphora. The observation is simply that there is a predicate anaphor in Basaá that is restricted in the types of predicates it can be anaphoric to. Specifically, the particle in question is *wéé*, and it can be anaphoric to SNs (24), but not to ANs (25), adjectives (26), or common nouns (27).

- |   |   |
|---|---|
| <p>(24) <i>líhat, wéé Paul</i><br/>rich WEE Paul<br/>'Rich, that's Paul.'</p> <p>(26) <i>#ŋkéŋjí, wéé Paul</i><br/>important WEE Paul<br/>'Important, that's Paul.'</p> | <p>(25) <i>#nlám, wéé Paul</i><br/>pretty WEE Paul<br/>'Pretty, that's Paul.'</p> <p>(27) <i>#malêt wéé Paul</i><br/>teacher WEE Paul<br/>'Teacher, that's Paul.'</p> |
|---|---|

This behavior makes sense if *wɛ́* is a sortally-sensitive anaphor, which can refer back to substance-characterizing denotations but not individual-characterizing ones.<sup>11</sup> The key fact for the purposes of the discussion here is that ANs cannot be the antecedent of *wɛ́*, by contrast with SNs, consistent with the former's lacking a substance-characterizing denotation and the latter's having such a denotation.

## 5. Some questions

The facts discussed above demonstrate that ANs do not have a substance-characterizing denotation, and have generally concluded that they are individual-characterizing. What they don't answer are (i) what precise denotation ANs have, and (ii) whether Basaá is genuinely special in having property concept nominals with this kind of denotation.

Beginning with the first question, the meaning of Basaá ANs is a difficult one because there is a fair amount of controversy about what exactly the denotation of adjectives is, with some researchers additionally claiming that adjectival meanings differ across languages (Beck et al., 2010; Bochnak, 2013; Bowler, 2016)). Three types of theory of adjective denotation are laid out in (28):

- (28) Three theories of adjectives
- a. Adjectives denote contextually sensitive sets of individuals (e.g., Kamp 1975; Klein 1980; van Rooij 2011).
  - b. Adjectives denote relations between individuals and a degree argument, with the degree to which the adjective holds specified either morphosyntactically or in context (e.g., Cresswell 1977; von Stechow 1984; Kennedy 1999).
  - c. Adjectives denote what *have* + substance nouns denote (see Menon and Pancheva 2014).

If Bochnak's (2013; 2015) analysis and diagnostics are taken at face-value, we can exclude (28a) from consideration for Basaá ANs, on the grounds that ANs behave like they have a degree (or alternatively, portion) argument—they can be used with measure phrases (29a) and in explicit comparatives (29b), for example.

- (29) a. *ŋ-koo ú yé n-tendée méda mí-tân*  
 3-rope AGR be 4-long 4.meter 4-five  
 'The rope is five meters long.'
- b. *hí.ní hi-nuní hi yé hi-láám lél hí-í.*  
 19-this 19-bird 19.AGR is 19-nice surpass 19-that.one  
 'This bird is nicer than that one.'

<sup>11</sup>The proposed contrast is similar in spirit (if different in details) to the ability of *it* and *that* in English to have predicative (but not individual-denoting) antecedents, as discussed e.g., by Mikkelsen (2005), and shown by the data in (i).

- (i) a. The tallest girl in the class, *that/it's* Molly.  
 b. The tallest girl in the class, *she/\*it/\*that's* Swedish. (Mikkelsen, 2005: 64)

The same points could be made for true adjectives in Basaá, illustrating more clearly that ANs and adjectives are semantically similar.

In addition, Basaá has a gradable modifier that can be used with ANs, *ɲgandak*:<sup>12</sup>

- (30) *di-nuní dí yé min-laɲgá ɲgandak.*  
 13-birds 13.AGR COP 4-black very  
 ‘The birds are very black.’

While the same modifier can be used with adjectives (31), it can also be used SNs (32), a fact which might suggest that ANs and the *have+SN* constituent should have the same type of denotation in order to give a uniform denotation to *ɲgandak*.

- (31) *hí-nuní híf hí yé hi-kéɲí ɲgandak.*  
 19-bird 19.that 19.SUB be 19-big very  
 ‘That bird is big.’ (adjective)

- (32) *kim a gweé ɲguy ɲgandak*  
 kim AGR has strength very  
 ‘Kim is very strong.’ (SN)

Nevertheless, it is still an open question whether this denotation is one that invokes degrees (and scales) or portions (and substances). To a large degree, this is a conceptual issue, though Francez and Koontz-Garboden (2015: 552–556) point to some empirical considerations which could possibly distinguish between the two kinds of theories. The issue hinges largely on the nature of the ordering relation on the degrees/portions, and whether it is antisymmetric (as it is on degree-based theories) or not (as in Francez and Koontz-Garboden’s portion-based theory). Further work is needed to examine this issue in Basaá and more generally.

The discussion thus far has been aimed simply at establishing the existence of individual-characterizing property concept nominals, and has used Basaá for the purposes of an unambiguous existence proof. We have not explored whether Basaá is unique in having property concept nominals of this type, however. As it happens, there is a case that English in fact has property concept nominals similar to Basaá ANs, even if these might be less numerous. The issue hinges on whether nouns like those in (33) are property concept nominals or not. While some of these are restricted to human nouns (*savant*, *genius*) or to inanimate nouns (*antique*), others are less restricted (e.g., *giant*), much like adjectives that could be used to paraphrase them (e.g., *huge*), suggesting that these should be classed as property concept words.<sup>13</sup>

- (33) idiot, savant, genius, giant, antique, disaster

<sup>12</sup>We have not investigated closely whether this gradable modifier shows all the requisite properties of a genuine degree/portion modifier; see Beltrama and Bochnak 2015 for discussion.

<sup>13</sup>These considerations point to the inductive nature of the notion of *property concept word*, and to the need for a property theory of what actually characterizes this class. This issue is one in need of work, and would answer the main question of Dixon (1982): why do adjectives have the meanings they have, particularly in languages with small closed classes of them, where such meanings are predictable?

This class of nouns use copular morphosyntax in predication, rather than possession.

- (34) a. This election is a disaster.  
b. #This election has disaster.

Nouns like *idiot* and *disaster* have, in fact, been investigated in some detail by Morzycki (2012), who points out that there are gradable modifiers in English that can be used with just nouns like these (but not, for example, nouns like *resident*, *teacher*, etc.), a fact which coupled with their behavior in predication, again makes them look like the Basaá ANs:

- (35) a. an utter/huge/big disaster/idiot/genius  
b. #an utter/huge/big teacher/table

In addition, these nouns can modify other nouns in a construction which closely resembles the Basaá AN-of-N construction (see Alexiadou et al., 2007: ch. 2 for an overview):

- (36) a. that idiot of a doctor  
b. the disaster of an election

We can make sense of such facts if these nouns have a denotation like adjectives (a relation between degrees and individuals, or alternatively portions of substance and individuals), with the degree argument saturated by a degree modifier, as in (35), or by *Pos*, creating a predicate of individuals. This suggests that Basaá might be special not so much in having individual-characterizing nominal property concept words, but rather having such a large, open, and productive inventory of them alongside the absence of a large open class of adjectives (cf. English).

## 6. Concluding remarks: Nominally encoded PCs have an argument in domain of substance

It is widely known by now, thanks to Dixon's (1982, 2004) observations, that property concept words can be nominal, adjectival, and verbal. More recently, Francez and Koontz-Garboden have shown that they also vary in their denotation—while property concept words in the familiar, best explored cases involving adjectives are individual-characterizing, there are many, particularly involving nouns, which are substance-characterizing. The program that the work in this paper fits into is that of determining whether all possible cross-classifications of category and meaning are attested, with the goal of using such a cross-classification to better understand the ways in which lexical categoryhood constrains word meaning. Limiting ourselves to adjectives and nouns, cross-classifying category with the two kinds of denotation identified by Francez and Koontz-Garboden leads to a picture like that in (37).

(37)	Nominal and adjectival property concept denotations	
	<i>Individual-characterizing</i>	<i>Substance-characterizing</i>
<i>Adjective</i>	English, Basaá adjectives	∅
<i>Noun</i>	<b>Basaá ANs</b>	Basaá SNs

The aim of the program is to determine whether the empty cells are genuinely empty, and if so why. In the case of substance-characterizing adjectives, for example, Francez and Koontz-Garboden (2017: Chapter 6) argue that they are genuinely unattested, and that their absence (impossibility, they argue) follows from the very nature of the adjectival category itself. In this way, the program leads to a better understanding of the nature of lexical categoryhood, adjectives in particular.

The question we have explored in this paper is whether the lower-left hand corner of the table in (37) is attested or not, i.e., whether there exist individual-characterizing property concept nouns. Previously, all known nominal property concepts have had substance-characterizing denotations, leading to the conjecture that they always had this denotation. We have shown that so-called Basaá adjectival nouns are at once nominal and individual-characterizing. Outstanding is still the question of precisely how Basaá adjectival nouns characterize individuals. As discussed briefly in §2, there is much debate in the formal literature about what precisely the denotation of adjectives are. The questions raised in that literature are relevant for the consideration of the precise denotation for Basaá adjectival nouns, and more work is needed. Further, it may well be that what is right for adjectives is actually not right for Basaá adjectival nouns, raising again the question of variation in denotation, and whether that might be tied to lexical category, albeit in a different form, with different kinds of denotations under consideration. In this paper, we have limited ourselves to the question of substance-characterizing denotations versus individual-characterizing denotations, without considering in a precise fashion what the latter are. Future work on Basaá should consider in a more precise fashion than we have done here what the denotations of Basaá adjectival nouns are, and what the observations made about these denotations tells us about the interface between lexical semantics and lexical category. For now, it is at least clear that property concept nominals need not be substance-characterizing.

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