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Bantu Noun Class Systems: Loanword and Acquisition Evidence of Semantic Productivity

1. Introduction

Bantu noun class systems can be roughly characterized in the following typological terms: First, noun classes tend to be realized as grammatical morphemes rather than independent lexical items. Second, they function as part of larger ‘concordial’ agreement systems, where nominal modifiers, pronominals, and verbs are all morphologically marked with the same noun class (gender) feature. Third, although productive semantic classes have been reconstructed for Proto-Bantu, much of the semantics of current Bantu noun classes is no longer productive, and in some languages the number of classes has been morphologically reduced. Nonetheless, noun class systems are *grammatically* productive in most Bantu languages, and *semantically* productive to some degree. The purpose of this chapter is to explore the nature of that semantic productivity and competing morphophonological processes, drawing specifically on evidence of productive synchronic derivational noun class processes, loanword classification, and the acquisition and use of noun classes by children. The synchronic evidence is drawn primarily from the southern Bantu languages Sesotho and Setswana, and acquisition evidence from Sesotho, Setswana, Zulu, and Siswati.¹

The chapter is organized as follows: Section 2 outlines the reconstructed Proto-Bantu noun class system and shows how some modern Bantu languages, as well as more distantly related languages, have lost several noun class distinctions while preserving others. Section 3 demonstrates the use of the Bantu noun class system and its concordial agreement system. Section 4 discusses the semantics of the Proto-Bantu noun class

system, both in a descriptive sense, and from the perspective of semantic ‘features’. Section 5 then explores the semantic productivity of the Sesotho noun class system, considering evidence from both derivational morphology and the classification of loanwords. Section 6 reviews some of the findings from the literature on the acquisition of Bantu noun class prefixes. Section 7 briefly considers frequency effects in the discourse use of nouns from different noun classes. The chapter concludes in section 8 with a discussion of the limited semantic productivity of Bantu noun classes, showing that animacy/humanness is most robustly retained.

2. Bantu Noun Class Systems in Comparative and Diachronic Perspective

Scholars of Bantu languages have long posited a common Proto-Bantu (*PB) source from which modern-day Bantu languages have evolved. Meeussen (1967) was particularly instrumental in reconstructing what is thought to be the noun class system of Proto-Bantu (see also Guthrie 1967-71 and Welmers 1973). Many Bantu languages today have lost some of the nominal class distinctions thought to have existed in the Proto-Bantu system. However, some classes seem to be more resistant to change than others, being maintained to some degree even in more distantly related Bantoid, Cross-River and Kru languages, amongst others (see also Givón 1970, Greenberg 1977, Hombert 1981, Hyman 1971, 1980, Voorhoeve & de Wolf 1969, de Wolf 1971). This is illustrated in Table 1, where Sesotho and Setswana are taken to be somewhat representative of ‘core’ Bantu noun class systems as realized today.²

[insert Table 1 about here]

From Table 1. it can be seen that noun classes 20-23 have been subject to massive loss, as have classes 12 and 13. Classes 11, 16, and 18 have been retained in some Bantu

languages but lost in others. Finally, very few of even the classes 1-10 have been maintained in the more distantly related languages, but those which still appear to be productive are classes 1 and 2a, as well as 9 and 10. The question addressed in this chapter is whether the classes that remain have any productive semantics that might play a role in maintaining this part of the system. If it is found, for instance, that semantics, rather than morphological leveling, plays an active role in the maintenance of specific parts of the noun class system, this might provide some insight into the ‘cognitive primitives’ speakers employ in the semantic organization of other nominal classifier systems.

3. Bantu Noun Classes and the System of Grammatical Agreement

The noun class systems presented in Table 1. typically have several singular-plural pairings. This can be seen in the noun class system of Sesotho, presented in Table 2.

[insert Table 2 about here]

As mentioned above, Bantu noun class systems also participate in a pervasive concordial agreement system, where nominal modifiers, pronouns, and the verb all agree with the head noun in terms of its class features. A sample of agreement morphemes for each Sesotho noun class are given in Table 3.

[insert Table 3 about here]

The sentences in (1) and (2) demonstrate how this agreement system works.³ For example, in (1) the demonstrative modifying the class 2 subject noun *ba-shanyana* ‘boys’ is the class 2 demonstrative *ba-ne* ‘those’. The subject marker on the verb then agrees

with this nominal subject, being realized as the class 2 subject marker *ba-*. On the other hand, the nominal modifier for the class 10 *di-perekisi* ‘peaches’ takes a class 10 relative prefix *tse-monate* ‘good’. Any other prefix would render the form ungrammatical. If the object is pronominalized, the object marker must likewise take the class 10 form *di-*, as shown in (2).

- (1) Ba-shányana bá-ne bá-fúmáné di-perekisi tsé-monáte
 2-boys 2-DEM 2SM-found 10-peaches 10-good
 'Those boys found some tasty peaches'
- (2) Bá-di-fúmáne
 2SM-10OM-found
 'They found them'

In sum, any loss of the noun class system would also have repercussions for the grammatical agreement system of the language. These systems are, however, independent to a degree: Leveling of the agreement system may happen without concurrent leveling of the noun class system itself, as attested in the case of Lingala (Bokamba 1983), and the reverse has been attested in some Kru languages (Marchese 1988, Demuth, Faraclas, & Marchese 1986). However, the pervasive nature of this system may account, in part, for the apparent robustness of these systems in core Bantu languages today (though see Stucky 1978). In the next section we consider the semantics of these systems.

4. The Semantics of the Proto-Bantu Noun Class System

Several researchers have attempted to reconstruct the semantics of the Proto-Bantu noun class system. For example, both Richardson (1967) and Welmers (1973) propose a semantic classification systems like that in Table 4.

[insert Table 4 about here]

Note that classes 1/2 typically include humans and other animates, and that classes 9/10 typically include inanimate objects. Recall that these were some of the classes maintained (albeit in relic form) in some of the Kru and other West African languages more distantly related to Bantu (see Table 1.). Other scholars, such as Denny & Creider (1986), have provided some hierarchical structure to these semantic classes, representing them as clustered groups that share certain higher-level ‘semantic features’. Their classification is provided in Figure 1.

[insert Figure 1 about here]

As will be shown later, distinctions within the count-noun group, especially with respect to kind, are those that tend to exhibit productive semantics today.

In sum, the underlying semantics of the Proto-Bantu noun class system is fairly well attested. Less well understood is how it is maintained in the numerous Bantu languages today, and, when there is decay of the system, why this affects some classes and not others. In the following sections I provide some comparative synchronic evidence of semantic productivity from the noun class systems of Sesotho and Setswana. Although different Bantu languages may show different types of semantic productivity, I suggest that the phenomena found in these languages is in many ways typical of other Bantu

languages. Furthermore, the types of evidence examined here should provide a framework for pursuing a more exhaustive study of these issues.

5. Synchronic Evidence of Noun Class Productivity

In this section I examine several word-formation processes for synchronic evidence of noun class productivity in Sesotho and Setswana. Although Bantu noun classes might be thought to be inflectional, several exhibit productive derivational characteristics (see Mufwene 1980). First I consider language-specific differences with respect to the locative classes 16, 17, and 18. I then consider several productive derivational processes involving deverbal nouns. Finally, I examine the treatment of loanwords, where competition between morphophonology and semantics is evident.

5.1 Derivational Morphology in Sesotho and Setswana

As shown in Table 1, languages like Setswana make productive use of all three locative prefixes, whereas languages like Sesotho do not. Examples are given in (3).

(3) Locative Classes 16, 17, 18

	<i>Setswana</i>	<i>Sesotho</i>	
16	fa-se-tlare-ng	se-fate-ng	'by the tree'
17	kwa-nok-eng	nok-eng	'at the river'
18	mo-se-dib-eng	se-dib-eng	'in the well'

In Bantu languages that have productive locative class prefixes, the locative morpheme is prefixed to the nominal stem, complete with its original noun class prefix. In other words, locative noun formation is an active derivational process, forming a locative noun out of an already inflected noun (cf. Bresnan & Kanerva 1989). In some languages the locative noun class prefixes are used in conjunction with an invariant locative suffix (-*(e)ng* in Setswana, *-ni* in Zulu and Kiswahili). In languages like Sesotho, however, *-(e)ng* has taken over as the locative marker, and the locative prefixes have been lost as productive noun classes. Reduced productivity with class 17 remains in Sesotho in the form of a genitive locative *ha* - e.g. 'at someone's house', or as an expletive subject marker *ho-*. This is illustrated in (4a) and (4b,c) respectively.⁴

(4) Remnants of Locative Class 17 in Sesotho

- a. Ke-ea ha-Thabo
 1sSM-go 17-Thabo
 'I'm going to Thabo's place'
- b. Ho-fihlile basadi
 17SM-arrived women
 'It is the women who arrived'/ Lit. 'There arrived women'

- c. Ho-a-chesa
 17SM-PRES-hot
 ‘It is hot’

In both Sesotho and Setswana, certain locative adverbs also show evidence of once having being part of the noun class system. Today these are non-productive lexicalized forms (5).

(5) Lexicalized Locative Adverbs

	<i>Setswana</i>	<i>Sesotho</i>	
16	fatshe	fatse	'down, on the ground, below'
17	godimo	hodimo	'the top, on top, above'
18	morago	moraho	'the back, at the back, behind, after'

Thus, the productivity of the Locative classes 16, 17, and 18 seems to be in flux: In many Bantu languages these prefixes are still productive, whereas in other (often closely related) languages this productivity has been lost. In the latter case locatives are then marked by an invariant locative suffix (-*ni* or -*ng*) and locative adverbials are lexicalized.

In contrast, most Bantu languages have a productive derivational process for constructing agentive nouns from verbs: From the Sesotho verb *ho-ruta* ‘to teach, the noun *mo-ruti* ‘a teacher’ is formed. Other examples are given in (6). Thus, class 1 and class 2 continue to be productive as a source of agentive nouns.

(6) Classes 1/2 = Human/Agentive

<i>Infinitive</i>			<i>Agentive Noun</i>
ho-pheha	'to cook'	>	mo-phehi 'cook'
ho-ruta	'to teach'	>	mo-ruti 'teacher, minister'
ho-bina	'to sing'	>	mo-bini 'singer'
ho-eta	'to travel'	>	mo-eti 'traveler, visitor'

In addition, persons with special or professional attributes, such as being a ‘chef’ rather than merely a ‘cook’, are given class 7/8 prefixes. Names of languages also fall into this class (see also section 5.2 on loanwords).

(7) Classes 7/8 = Special Attributes

<i>Infinitive</i>			<i>Attributive Nouns</i>
ho-pheha	'to cook'	>	se-phehi 'chef'
ho-ruta	'to teach'	>	se-ruti 'work and character of a minister'
ho-bina	'to sing'	>	se-bini 'professional singer'

Languages

Se-sotho 'language of the Ba-sotho'

Se-fora 'French'

Se-geremane 'German'

Class 14 - the abstract noun class, shows a similar type of productivity (8).

(8) Class 14 = Abstract Characteristics

<i>Infinitive</i>			<i>Abstract State</i>	
ho-phela	'to-live'>		bo-phelo	'life'
ho-rata	'to love' >		bo-rato	'love'
ho-eta	'to travel' >		bo-eti	'state of a traveler'

Thus, though perhaps used less productive than class 1/2 agentive nouns in terms of overall frequency, classes 7/8 and class 14 nonetheless show synchronic evidence of semantic productivity. We might therefore expect these classes to persist over time. Interestingly, these are all maintained in the Bantu language Western Ejam, as shown in Table 1, and correspond closely to the ‘kind’ distinctions (plus class 14 = configuration) made by Denny & Creider (1986) in Figure 1. I now turn to an examination of loanwords in order to determine if semantics plays a role in their classification, and if so, how.

5.2 The Classification of Loanwords in Sesotho

Loanwords provide a particularly interesting set of data for investigating the synchronic productivity of semantics within the noun class system. The data considered in the following discussion are not exhaustive, but may be considered representative of the types of criteria that play a role in loanword assignment to noun classes. From a randomly selected sample of 200 nouns drawn from a dictionary of Sesotho (Paroz 1974), 26 were loanwords from either English [E.] or Afrikaans [A.]. All noun classes are represented, though there are greater numbers of some than others. Nouns appear to be classified on the basis of either 1) phonology or 2) semantics (e.g. humans - classes 1/2 or 1a/2a). When neither is applicable, nouns are assigned to the ‘default’ class: In Sesotho this is class 9/10, whereas in languages like Zulu this is class 5/6. I discuss each

of these forms in turn. The Sesotho noun class prefixes are provided again below for easy reference.

(9) Sesotho Noun Class prefixes

1/2	mo-/me-
1a/2a	ø/ba-
3/4	mo-/me-
5/6	le-/ma-
7/8	se-/di-
9/10	ø(N)/di(N)
14	bo-

Consider the forms in (10) that are classified phonologically.

(10) Phonological Classification of Sesotho Loanwords

3/4	mmo-folara	<	muffler [E.]	'muffler, scarf'
3/4	mo-chini	<	machine [E.]	'machine, engine'
5/6	le-lente<		lint [A.]	'ribbon'
7/8	se-tulo	<	stoel [A.]	'chair'
7/8	se-tebeleki	<	stiebeuel [A.]	'stirrup'
7/8	se-teraeke	<	strike [E.]	'strike'
7/8	se-pekere	<	spyker [A.]	'nail'
7/8	se-petlele	<	hospital [E.]	'hospital'

14/6	bo-rikhwe	<	broek [A.]	'trousers'
14/6,10	bo-rogo	<	brug [A.]	'bridge'
14/6	borotho	<	brood [A.]	'bread, bread maize'

Here we see that the (non-human) loan words beginning with /m/ are assigned to class 3/4 (*mo-/me-* prefixes), but not to human class 1 (*mo-*). Likewise, words beginning with /s/ are assigned to class 7/8, even if they have no ‘special attribute’ semantics. In most of these cases the loanword begins with a consonant cluster composed of an /s/+ consonant sequence. As Sesotho does not allow complex onsets, and must therefore insert an epenthetic vowel to break up the consonant cluster, the morphophonologically appropriate epenthetic vowel is inserted and the noun falls into class 7. In the case of *se-petlele* < ‘hospital’, the onset and nucleus of the initial syllable of the source word are dropped, and the same processes then apply. A similar procedure is at work with nouns assigned to class 14. Note that ‘semantically’ these should be ‘abstract nouns’, but they are not. Rather, they fit phonologically into the class that begins with /b/. Once again, a consonant cluster is broken up through insertion of the morphologically preferred /o/, and these nouns are now classified as class 14 (though unlike abstract nouns, these nouns have a plural in either class 6 or class 10). The 5/6 form *le-lente* seems to follow a similar process in that it is also assigned to this class on the basis of its phonological shape. However, the *le-* of its original form seems to have been reduplicated! One possible explanation for this may be that nasal-initial nominal stems generally fall into class 9 (*nko* ‘nose’, *nku* ‘sheep’, *ntja* ‘dog’) where they take no singular prefix, and a *di-* plural prefix.⁵ Thus, given competing phonological requirements, reduplication of the prefix (and subsequent ‘regularization’ of the stem) provide the ‘optimal’ solution to categorizing this noun.

But what about nouns that are not classified according to phonological shape - how are they classified? These forms are generally assigned to class 9/10 - the 'default' class.

(11) 'Default' Classification of Sesotho Loanwords

a.	9/10	tafole	<	tafel [A.]	'table'
	9/10	ofisi	<	office [E.]	'office'
b.	9/10	metlele<		medal [E.]	'medal'
c.	9/10	letere	<	letter [A.]	'letter, type'
	9/10	materase	<	matras [A.]	'mattress'
d.	9/10	basekomo	<	waskom [A.]	'washbasin'
	9/10	basekiti	<	basket [E.]	'basket'
	9/10	bate	<	bad [A.]	'bath'
	9/10	buka	<	boek [A.]	'book'
e.	9/10	tichere <		teacher [E.]	'teacher'
	9/10	nese	<	nurse [E.]	'nurse'

However, given the various phonological shapes of the source words, we might have predicted that some of the words in (11) to have been classified on morphophonological grounds. For example, the form in (11b) might be expected to take the class 4 prefix *me-*, but it doesn't. The same might be expected of the examples in (11c), which should logically fit into classes 5 (*le-*) and 6 (*ma-*). Even more problematic are the cases in (11d), where words beginning with /b/ are not taken into either class 14 (*bo-*) or class 2

(*ba-*). This is all the more perplexing given the forms just seen in (10), where loanwords of several different phonological shapes were incorporated into phonologically motivated noun classes. Note, however that the forms in (11) differ phonologically from the forms in (10): All of the loanwords incorporated into class 7/8 and 14 had a word-initial consonant cluster (e.g. /st/ or/ br/) where vowel epenthesis was needed prior to morphological incorporation. In contrast, all of the forms in (11) have simple consonant onsets: It appears that the different quality of the vowel in the forms in (11) blocks incorporation of these forms into all but the default class.⁶

In sum, loanwords can be incorporated into the noun class system on a phonological basis if both the consonant and the vowel of the first syllable correspond to a possible noun class prefix. This possibility seems to be maximized when an epenthetic vowel is inserted to break up a consonant cluster. In cases where there is no good morphophonological match, nouns will be assigned to the ‘default’ class (class 9/10 in Sesotho). This is true even in the case of ‘human’ nouns, as illustrated by the forms in (11e). It would therefore appear that the assignment of loanwords to noun classes on the basis of phonological similarity seems to be a robust and (largely) straightforward process, and that semantics plays no role. However, this is not entirely the case. Consider the forms in (12).

(12) Semantic Classification of Sesotho Loanwords

a.	1/2	mo-lepera	<	leper [E.]	'leper'
	1/2	mo-monke	<	monk [E.]	'monk'
b.	1a/2a	base	<	baas [A.]	'boss'
	1a/2a	nnese	<	nurse [E.]	'nurse'

c.	7	se-fora <	French	'French'
	7	se-geremane <	German	'German'

Here we see that *leper* is not incorporated into class 5 (*le-*) (though neither was *letter* in (11c) above). Rather, it is overtly prefixed with class 1 *mo-*, assigning it human status. The same happens with *monk*: The word initial /m/ was not sufficient to assign it to class 1 - perhaps for the same morphophonological/prosodic reasons that *le-lente* in (10) above was also assigned an overt prefix (i.e. *monke* minus the *mo-* results in a bisyllabic nasal-initial stem). What is interesting, however, is that these two nouns were incorporated into the human class (class 1), not class 5 (*le-*) and class 3 (*mo-*), and that this appears to have been a productive derivational process much like that discussed in section 5.1. Thus, there does seem to be some (human) semantics at work in assigning at least some loanwords to particular noun classes.

Now consider the forms in (12b). Here we see that *base* and *nnese* are incorporated into class 1a/2a. Recall that these forms have no prefix in the singular, only *bo-* in the plural. But also recall that we saw a slightly different form for 'nurse' in (11e) - that is, *nese* was assigned to class 9/10! Both classes 1a and 9 have no singular noun class prefix, making incorporation easy on phonological grounds. However, the forms in (12b) have been classified as human. It is possible that 'boss' and 'nurse' are much more frequently occurring forms than 'leper' and 'monk', and are therefore not in need of a singular morpheme to mark them as 'human'. What remains a puzzle is why the 'human' loanwords in (10e) are not also classified as 1a/2a nouns.

As noted in (7) above, and again here in (12c), names for languages are productively assigned to class 7. These may also be thought of as loanwords - again showing the semantic productivity of this ‘attribute’ class.

In sum, it appears that *some* human nouns get (at least optionally) assigned to the human classes 1/2 or 1a/2a. Whether this actually overrides assignment on phonological grounds, or simply applies to forms that would otherwise be assigned the default class 9/10, will have to be determined with a larger sample of the corpus and finer-grained phonological analysis. What Sesotho loanwords do tell us, however, is that the *human* classes (and to some extent the ‘attribute’ class) still retain some semantic productivity. Spitulnik (1987), in a study of the semantics of ChiBemba noun classes, reports similar findings with respect to ‘animate’, but also finds some locative function for class 3, and some spatial characteristics for classes 9 and 14, and the notion of ‘multiplicity’ in class 6. Whether this is more generally true amongst Bantu languages, or whether languages show large amounts of variation in this regard, is still to be determined. However, it appears that loanwords in a variety of Bantu languages are assigned noun class membership on the basis of ‘competing’ phonological and semantic criteria.

6. Semantic Productivity and the Acquisition of Noun Classes

Researchers often ponder the possibility that children may play a role in the course of language change. We might, for instance, expect children to pick up on the semantically (or cognitively) most ‘salient’ features of a noun class system. This would, of course, require a theory of cognitive complexity with respect to semantic classes (e.g. Carey 1985, Keil 1989). However, we can also look at how children learn Bantu noun class systems, and if their errors exhibit evidence of semantic overgeneralization.

There have been several studies on the acquisition of Bantu noun class morphology (Sesotho - Connelly 1984, Demuth 1988, Setswana - Tsonope 1987, Siswati - Kunene 1979, Zulu - Suzman 1980, Isangu - Idiata 1998). All of these studies report similar results: The morphological realization of noun class prefixes proceeds in a three step process, where nouns are first produced with no prefix, then in reduced form, and finally in their full form. This is outlined in (13).

(13) Stages in the Acquisition of Bantu Noun Class Prefixes

- a. No prefixes (full or partial noun stems)
- b. 'Shadow' vowel and nasal prefixes
- c. Full morphophonologically appropriate noun class prefixes

These stages are, of course, not entirely discrete: At a given stage of development there is often some variation in form, with more or less of a prefix actually surfacing, as shown in the consecutive utterances given in (14) (from Demuth 1988:309):⁷

(14) Early Variation in the shape of Noun Class PrefixesChild-2;1 yrs. Adult Target

- | | | | |
|----|------------|------------|---------------------|
| a. | /phokə/ | /ma-phəqə/ | 'green corn stalks' |
| b. | /a-pokə/ | | (class 6) |
| c. | /ma-pənkə/ | | |

The early lack of noun class prefixes and fluctuation in their use may be partly due to the fact that adults too show some variation in the use of noun class prefixes at least in languages like Sesotho: When a nominal modifier is used, the prefixes of classes 5, 7, 8, and 10 (classes with +grave consonants) are optional, especially in informal speech (15).⁸

(15) Synchronic Variation in Adult Use of Sesotho Noun Class Prefixes

	<i>Noun</i>		<i>Noun + Modifier</i>	
5	le-tsatsi	>	(le)-tsatsi le-na	'day/today (this day)'
7	se-tulo	>	(se)-tulo sa-ka	'chair/my chair'
8	di-tulo	>	(di)-tulo tsa-ka	'chair/ my chairs'
10	di-ntho	>	(di)-ntho tse-na	'things/these things'

Critically, however, children acquiring Bantu noun class systems *do not make semantic overgeneralizations*. The only errors of commission found are case where the singular may take its plural in one of two classes. For example, Sesotho class 9 nouns generally take their plural in class 10, though a few nouns take the class 6 plural *ma-*. Connelly (1984:81) notes one case of a very young child (1;9 yrs.) using the class 10 plural rather than class 6. Two months later, at 1;11 yrs., the child was using the appropriate class 6 plural.

(16) No Semantic Overgeneralization

	<u>Child</u>	<u>Adult Target</u>
(1;9 yrs.)	*di-simba (10)ma-simba	'Simba (potato) chips'
(1;11 yrs.)	ma-simba (6) (class 6)	

In other words, when children *do* make class assignment errors in spontaneous speech, these are 'legal', *grammatically* motivated errors, not semantic overgeneralizations. Thus, it appears that very young children do not have access to the productive semantics of the noun class system, but treat it rather as a formal grammatical system.

Demuth (1988) discusses these issues in crosslinguistic perspective, showing that very young children have access to the phonological properties of formal grammatical systems, but that access to the semantics comes later, perhaps around the age of 4 or 5. Kunene (1979), in an experimental study of 4;6-6 year old Siswati-speaking children's knowledge of noun classes and plural formation found evidence for phonological leveling (17a), grammatically motivated errors like the Sesotho example above (16, 17b), as well as some semantic overgeneralization to class 2a plurals (17c).

(17) Children's Errors in Siswati Singular/Plural 'wug' tests

a. *Phonological Leveling*

	<u>Adult Target</u>		<u>Child</u>	
Class 11	lu-	>	*li-	(Class 5)
Class 7	si-	>	*i-	
Class 8	ti-	>	*i-	

b. *Plural Mismatches/*

	<u>Adult Singular</u>		<u>Child Plural</u>	
Class 9 in-	>	*ema	(Class 6)	[tin- Class 10]

c. *Addition of 2a Plural to Singular Stem*

	<u>Adult Singular</u>		<u>Child Plural (Class 2a)</u>	
Class 1 umu-	>	*bo-umu	(> *bo-umu-ntu 'people')	
Class 14 bu-	>	*bo-bu	(> *bo-bu-so 'faces')	

Particularly noteworthy is the fact that class 2a is being overgeneralized to some nouns. Although the plural for 'people' should be class 2 in any event, the fact that children

classify ‘faces’ as ‘human’, or perhaps more plausibly as ‘animate’, is suggestive of some active semantics.

Further evidence of an active semantic category for ‘animate’ comes from Isangu, spoken in Gabon (Idiata 1998). In telling stories, 4-7 year-old children used the appropriate noun class prefixes, but switched to class 1/2 subject agreement for animate subjects. This is a common characteristic of story telling used by Sesotho-speaking adults, and by adult speakers of other Bantu languages: A more extensive study of these issues is needed to determine when children have both the cognitive prerequisites and the grammatical, discourse, and narrative abilities to mark animacy in this way, and the possible effects this might have for the retention or erosion of noun class prefixes over time.

In sum, the acquisition evidence suggests that very young children have access to the phonology, but not the semantics, of Bantu noun class prefixes. We might then expect children to exert a greater force on phonological leveling within Bantu noun class systems, rather than retention of classes on the basis of semantics. On the other hand, there is some evidence that children become aware of ‘human’ and ‘animacy’ features by the time they are 4 or 5. When and how they become aware of semantic classifications such as ‘abstract nouns’ or ‘attributes’, and begin to use these classes productively in terms of derivational morphology and/or loanword classification is unclear.

7. Noun Classes and Frequency Effects

Frequency effects too may play a role in highlighting certain grammatical categories in languages. In this respect it is interesting to consider the frequency with which nouns of different noun classes are used in everyday speech. Although text analysis of spoken Bantu language corpora have yet to be conducted to address issues of noun class

frequency, Suzman (1991) has examined this issue from the perspective of how frequently 2-year-old Zulu-speaking children use nouns from different noun classes. Her findings, though not quantified, are suggestive: The high frequency classes are 1a (humans and relatives), 5 (the Zulu ‘default’ class), and 9 (things), as illustrated in Table 5.

[insert Table 5 about here]

Note that the highest frequency classes are singular, and that there is a separate ‘default’ and ‘thing’ class in Zulu, whereas these are conflated in Sesotho, resulting in a highly frequent class 9. Thus, we find some motivation for the existence of ‘human’ as opposed to ‘non-human’ classes merely on the basis of frequency effects. This is perhaps not surprising: We might expect this to be a highly salient characteristic of classification systems in general, as it plays a major role in our experiences with the real world.

8. Discussion

In this chapter I have shown that, despite the reduced number of noun classes found in Bantu languages today, there is still some semantic productivity within the system. In languages like Sesotho, where the locative classes (16, 17, 18) have been largely lost, derivational word-formation processes still show productivity in the human classes (1/2), the attribute classes (7/8), and the abstract noun class (14). In contrast, loanwords seem to show productive semantics only in the human classes (1/2, 1a/2a), and to a limited extent with the attribute class (7/8) - otherwise loanwords are classified according to morphophonological criteria, or assigned to the default class (class 9/10 in Sesotho). Siswati-speaking children of 4;6-6 years show some tendency to overgeneralize human class 2b plural morphemes in experimental tasks, and Isangu-speaking children of the

same age provide animate nouns of various classes with class 1/2 verb agreement in story-telling tasks. Thus, children of this age show some propensity to encode human/animacy distinctions in the grammatical choices they make. Furthermore, nouns of class 1a/2a appear extremely frequently in the speech of young Zulu-speaking children, as does the highly frequent class 9/10 which contains primarily ‘things’ - or non-animates. These findings are summarized in Table 6.

[insert Table 6 about here]

Given the different types of evidence discussed above it would appear that at least some parts of the Bantu noun class will probably persist over time. First, Bantu noun class systems are part of a pervasive system of grammatical agreement which is phonologically transparent and productive. It is therefore easy to learn as a formal grammatical system, unlike, for instance, the Icelandic case/gender system (see Demuth 1988 for discussion). Second, although the use of noun classes in languages like Sesotho shows some limited cases of ‘optionality’, noun class prefixes are generally obligatory, making learning of the system very easy. Third, at least some of the noun classes are still semantically productive. This is most readily seen in the case of derivational morphological process, where deverbal nouns are assigned to specific noun classes on the basis of the meaning desired. Finally, Bantu noun class systems encode human and/or animacy distinctions - one of the earliest semantic distinctions made by young Bantu language-speaking children, and one of the most frequently used in everyday discourse. Interestingly, the animate/non-animate distinction has been retained in the more distantly related Cross-River and Kru languages (see Table 1), and is the most prominent semantic distinction made in many European languages.

But why should nouns be classified at all? Why this propensity for many languages to mark nouns with some sort of classifier? One might ask the same question of verbs: Why do verbs tend to cooccur with a morpheme or separate lexical item encoding tense or aspectual distinctions? Drawing on proposals by Demuth & Gruber (1995), I suggest that the answer may be the same for both: One can think of tense or aspect marking as delimiting the verb in a semantic or propositional sense. That is, states and actions do not exist in a vacuum, but must be situated in time and space, with reference to the rest of the world. A similar notion can be applied to nouns and their accompanying determiners and/or nominal classifiers: An object is similar to or different from other objects with respect to certain sets of delimiting attributes of specificity or kind. Just as different languages encode different parts of the logically possible tense or aspectual system, so too languages differ to the extent that they classify nouns, and in the semantic categories that they select to do so. I suggest that the classification of nouns can be thought of as a semantic (and grammatical) necessity, just as verbs must semantically (and grammatically) be classified with respect to tense/aspect.⁹ If this is so, then we need the equivalent of a Reichenbachian treatment for nominal classification. That is, we need a theory of nominal classification that might contain semantic features of the sort proposed by Denny & Creider (1986), that can account for the conceptual primacy of certain semantic notions like humanness and animacy, and that can capture the discourse contexts in which these forms are obligatorily used. It is hoped that the issues raised in this paper will constitute a small step in moving toward that goal.

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¹ Sesotho and Setswana are part of the Sotho group of languages (Guthrie zone S30) whereas Zulu and Siswati are part of the Nguni group of languages (Guthrie zone S40).

² References: *PB - Meeussen 1967, Welmers 1973; Setswana - Cole 1955; Sesotho - Doke & Mofokeng 1957; W. Ejagam (Ndebaya-Eyumojok dialect) - Watters 1980; Cross River & Kru - Demuth, Faraclas & Marchese (1986) and references therein.

³ Glosses are as follows: DEM = demonstrative, OM = object marker, PRES = present tense, SM = subject agreement marker.

⁴ See Demuth (1990) and Machobane (1995) for discussion of Sesotho locatives, and Demuth & Mmusi (1997) for discussion of Setswana locatives.

⁵ The word-initial syllabic nasal found with many class 9 nouns may have arisen historically as an epenthetic consonant required to render monosyllabic nominal stems into legitimate ‘minimal prosodic words’ (Doke & Mofokeng 1957, Demuth & Fee 1995).

⁶ A fuller, more phonologically detailed account of these phenomena is obviously needed, where the vowel quality of the loanword and the vowel quality of the Sesotho noun class prefixes are considered (note that the ‘e’ and ‘o’ of the Sesotho noun class prefixes are actually the high mid vowels /i/ and /ù / respectively (cf. Doke & Mofokeng 1957, Khabanyane 1991). See Batibo (1995) for alternative proposals for determining the quality of vowels epenthesized in Setswana and Kiswahili loanwords.

⁷ Alternatively, the early omission of noun class prefixes may be partly due to children’s developing prosodic word structure, where early words are restricted in shape to Minimal Prosodic Words, or disyllabic feet, resulting in the early omission and variable production of noun class prefixes (Demuth 1994, Demuth & Fee 1995).

⁸ Craig (1986) notes that the use of nominal classifiers may show some discourse optionality in other languages as well. Little is known about how pervasive this

phenomena is, but it would appear to be important for better understanding the grammatical role that classifiers play in language.

⁹ In this regard it is interesting to note that tense/aspect words and morphemes are frequently grammaticized forms of verbs, and nominal classifiers are frequently grammaticized forms of nouns (cf. Craig 1986, Hiene, Claudi, & Hünemeyer 1991). There are, of course, importantly differences between the two: Verbs tend to be more flexible in their concurrence with several different tense/aspect markers, whereas nouns are generally more rigidly assigned to a particular noun class. However, some verbs typically occur with a restricted set of tense/aspect markers, and some noun class systems - such as that found in Bantu languages - permit a certain amount of flexibility in the class to which a certain nominal stem belongs - e.g. Sesotho *mobini* 'singer' versus *sebini* 'professional singer'.

<i>*PB</i>	<i>Setswana</i>	<i>Sesotho</i>	<i>W. Ejagam</i>	<i>Cross River & Kru</i>
1 mo-	mo-	mo-	N-	x
1a ø	ø	ø		
2 va-	ba-	ba-	a-	
2a Vò-	bo-	bo-		x
3 mo-	mo-	mo-	N-	
4 me-	me-	me-		
5 le-	le-	le-	e-	
6 ma-	ma-	ma-	a-	
7 ke-	se-	se-		
8 Vi-/di	di-	di-	bi-	
9 n-	N-	(N)-	N-	x
10 di-n-	diN-	di(N)-		x
11 lo-	lo-			
12 ka-				
13 to-				
14 Vo-		bo-	bo-	o-
15 ko-	ɓ-	ho-		
16 pa-	fa-			
17 ko-	ɓ-	ho-		
18 mo-	mo-			
19 pi-			i-	
20 ɓ				
21 ɓ̄				
22 ɓ̄				
23 ɓ̄				

Table 1. Various Niger-Kordofanian Noun Class Systems

	Class	Singular	Class	Plural
'person'	1	mo-tho	2	ba-tho
'aunt'	1a	rakhádi	2a	bo-rakhádi
'dress'	3	mo-sé	4	me-sé
'day/sun'	5	le-tsatsí	6	ma-tsatsí
'tree'	7	se-fate	8	di-fate
'dog'	9	n-tjá	10	din-tjá
'health'	14	bo-phelo		
'to cook'	15	ho-phéha		

Table 2. Noun Class Prefixes in Sesotho

Class	Nominal	Prfx	Subj-Agr	Obj-Agr	Adjective	Demonstrative	PN	Genitive	Relative
1	mo-		o-	-mo-	e-mo-	enwa	yena	wa-	ya
1a	∅		o-	-mo-	e-mo-	enwa	yena	wa-	ya
2	ba-		ba-	-ba-	ba-ba-	bana	bona	ba-	ba
2a	bo-		ba-	-ba-	ba-ba-	bana	bona	ba-	ba
3	mo-		o-	-mo-	o-mo-	ona	oona	wa-	o
4	me-		e-	-me-	e-me-	ena	yona	ya-	e
5	le-		le-	-le-	le-le-	lena	lona	la-	le
6	ma-		a-	-a-	a-ma-	ana	ona	a-	a
7	se-		se-	-se-	se-se-	sena	sona	sa-	se
8	di-		di-	-di-	tse-N-	tsena	tsona	tsa-	tse
9	∅(N)-		e-	-e-	e-N-	ena	yona	ya-	e
10	di(N)-		di-	-di-	tse-N	tsena	tsona	tsa-	tse
14	bo-		bo-	-bo-	bo-bo-	bona	bona	ba-	ba
15	ho-		ho-	-ho-	ho-ho-	hona	hona	ha-	ho

Table 3. Sesotho Concoridal Agreement Morphemes and Pronominals

<i>Noun Class</i>	<i>Meanings</i>
1/2	humans, other animates
1a/2a	kinship terms, proper names
3/4	trees, plants, non-paired body parts, other inanimates
5/6	fruits, paired body parts, natural phenomena
6	liquid masses
7/8	manner
9/10	animals, inanimates
11	long thin objects, abstract nouns
12/13	diminutives
14	abstract nouns, mass nouns
15	infinitive
16,17,18	locatives (near, remote, inside)
19	diminutive
20/22	augmentive (diminutive)
21	augmentive pejorative

Table 4. Proto-Bantu Noun Class Meanings

<u>Classes</u>	<u>Adults</u>	<u>Children</u>	<u>Semantics</u>
1	um(u)-	um(u)-	
2	aba-		
1a	u-	u-	humans, relatives
2a	o:		
3	umu-		
4	imi-		
5	i:-	i:-	Zulu 'default' class
6	ama-		
7	isi-	isi-	*not frequent in child speech
8	izi-		
9	iN-	iN-	things
10	iziN-		(overgeneralized by both adults & children)
11	ulu-		
14	ubu-		
15	uku-		

**Table 5. Noun Classes Most Frequently Used by
2-year-old Zulu-Speaking Children**

Synchronically Active Semantic Processes				
Classes	Derivational Processes (Sesotho)	Loanword Classification (Sesotho)	Plural Overgen. (Child Errors)	Frequency Effects (Child Zulu)
1 / 2	x	x		
1a/2a		x	x	x
3/4				
5/6				x
7/8	x	(x)		
9/				x
11				
14	x			
15				
		default phonology		default

Table 6. Semantic Productivity of Noun Class Prefixes

Figure 1. Proto-Bantu Noun Class Semantics (Denny & Creider 1986:219)