

15 Noun Classes and Agreement in Sesotho Acquisition

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THIS PAPER EXAMINES the acquisition of agreement in a Bantu noun class system. It finds that nominal-modifier agreement is productive before the systematic marking of nouns. When nouns are finally marked with class prefixes, marking occurs without error. This suggests that the learning of both nominal class and agreement marking is highly dependent on a class feature associated with each noun, even though its overt marking surfaces only later. The paper concludes with a brief consideration of the learning of agreement in some Indo-European and Semitic languages and discusses how these phenomena differ from Bantu.

1 Bantu Noun Class and Agreement System (Sesotho)

Bantu noun classes typically consist of several singular/plural pairs. The number of these noun classes varies from one language to the next, but generally include 13-18 individual classes, from which 5 or 6 pairs are formed. Each noun class has its own set of phonologically similar agreement markers for subject-verb agreement, object clitic, adjectives,

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demonstrative pronouns, independent pronouns, possessive pronouns and relative pronouns. While the system was semantically based historically (cf. Hiene 1982), psychological studies indicate that little of this old semantic system remains productive today (Burton and Kirk 1976). Those classes which are still partially productive include a human class (class 1/2) and an "abstract/mass noun" class (class 14). New or borrowed terms which are not semantically related to these classes are assigned to classes on phonological grounds, or put into a "default" class (9/10 for Sesotho). Most Bantu nouns are marked by prefixes (but cf. Greenberg 1977). The noun class prefixes and agreement markers in Sesotho thus include the following:

	Class	subj-V	obj-clit	adj	demonstr	PN	Poss	Rel
1	mq-	q	mq-	e-mq	enq	eena	oa-	ea
1a	∅	q	mq-	e-mq	enq	eena	oa-	ea
2	ba-	ba	ba-	ba-ba	banq	bona	ba-	baa
2a	bq-	ba	ba-	ba-ba	banq	bona	ba-	baa
3	mq-	q	mq-	o-mq	onq	ona	oa-	oo
4	mę-	ę	mę-	e-mę	enq	eona	ea-	ee
5	le-	le	le-	le-le	lenq	lona	la-	laa
6	ma-	a	a-	a-ma	anq	ona	a-	aa
7	se-	se	se-	se-se	senq	sona	sa-	saa
8	li-	li	li-	tse	tseq	tsona	tse-	tsee
9	∅	e	e-	e-N	enq	eona	ea-	ee
10	li-	li	li-	tse-N	tseq	tsona	tse-	tsee
14	bq-	bq	bq-	bo-bq	bonq	bona	ba-	baa
15	hq-	hq	hq-	ho-hq	honq	hona	ha-	haa

	sg	pl
'person'	1 mq-thq	2 ba-thq
'aunt'	1a rakháli	2a bo-rakháli
'dress'	3 mq-sé	4 mę-sé
'day/sun'	5 le-tsatsí	6 ma-tsatsí
'spring/well'	7 se-liba	8 li-liba
'dog'	9 ∅-ntjá	10 li-ntjá
'bread'	14 bq-hóbe	6 ma-hóbe
'to cook'	15 hq-phéha	

Table 1. Noun Class Prefixes and Agreement Markers in Sesotho

Notice (a) the phonological regularity of the agreement system, i.e., nominal markers have a high degree of phonological similarity with all their agreement markers, and (b) marking is for number and gender only—no case marking is involved on the noun. Thus, while the number of noun classes exceeds that of most gender or case agreement systems in other languages, this complexity may be manageable for learners due to its phonological regularity, its morphological transparency and the pervasive use of agreement throughout the language system. The use of these agreement markers is illustrated below:¹

- (1) a. mq-thq é-mq-hqlq q-rata ∅-ntjá é-ntle éa-haê
 1 1 1 1 9 9 9 1
 person big he/she-like dog beautiful of-his/her
 '(The) old person likes his/her beautiful dog.'
- b. ba-thq bá-bá-hqlq ba-rata li-ntjá tsé-ntle tsá-bona
 2 2 2 2 10 10 10 2
 people big they-like dogs beautiful of-them
 '(The) old people like their beautiful dogs.'

Notice here that the possessives (at the end of each clause) are formed by markers which agree with both possessed and possessor, a case of "double" agreement.

2 The Data Base

The data upon which this study is based are drawn from a corpus of 93 hours of natural, spontaneous verbal interactions between 4 children, their peers, siblings and adult members of their families. The children were aged 2 to 4½ years and were recorded over a 12 month period. The corpus includes an abundance of examples of both nominal and agreement marking at each stage of the children's linguistic development.

3 Noun Class Markers

3.1 Projected Problems for Bantu Noun Class Acquisition

Language acquisition research has led us to suppose that there are universal strategies which a child may employ during the language learning process, regardless of the language being acquired. Some of these strategies have been formalized as "operating principles" (Slobin 1985) which have been based on and continue to be refined by acquisition data from

¹ Transcription conventions used here generally follow Lesotho orthography, but include the marking of high tone (ó, é), high mid vowels (q, ę), and open mid vowels (ɔ, e).

a variety of languages from different language families. Using these principles, predictions have been made concerning the strategies one might expect to find in the acquisition of the Sesotho noun class system:²

(a) The learning of noun class prefixes might prove problematic as they carry little semantic content, are usually found in unlengthened/unstressed syllables, and bear low tone. The evaluation of this prediction will gradually evolve as we progress through this paper. Suffice it to say for the moment, however, that the use of full noun class prefixes is delayed till around 2½ or 3 years of age. Once prefixes become productive, however, they appear with no overgeneralizations.

(b) In the process of linguistic development children tend to assign one phonological form to one grammatical function. Given the multiplicity of singular/plural forms in Bantu languages, one might expect children to collapse these distinctions, using only one plural marker for all nouns:

(2)	m̩-s̩sé	>	*li-s̩s̩	'dresses'
	3		10	
	ma-rú	>	*li-ru	'clouds'
	6		10	
	li-ntjá	>	li-ntjá	'dogs'
	10		10	

This is apparently not a productive process in Sesotho acquisition.

(c) The stem plus singular prefix might be analyzed as the root form of the word, to which a plural marker would then be added:

(3)	s̩s̩-fate	'tree'	>	*s̩s̩fate	'tree'	>	*li-s̩s̩fate	'trees'
	7			7			10	

Again, we find no such cases of erroneous segmentation, though this is precisely what has happened to plural formation in dialects of Kikongo (Stucky 1978).

(d) At another stage of development, children tend to regularize paradigms. So we might expect that, when singular/plural marking becomes productive, class 9 and class 1a nouns (that take ∅ marking) will be assigned a singular marker of some sort, making them "fit the paradigm":

(4)	∅-ntjá	>	*s̩s̩-ntja	'dog'
	9		7	

² Predictions of agreement and noun class acquisition problems were generated during a seminar on Sesotho Acquisition at U. C. Berkeley during the fall of 1983, based on Slobin's *Operating Principles* as revised (1985). Comparative data from Sesotho, Chichewa (Chimombo) and Zulu (Suzman) was presented in a joint panel entitled "Problems in Bantu Acquisition," presented at the Stanford Child Language Research Forum, Stanford, March 1985.

Likewise, a few monosyllabic noun stems plus prefix might be mistakenly analyzed as more common CVCV nominal stems, being thought to belong to class 9 and prefixing a class 10 plural marker:

(5)	m̩q-s̩s̩	'dress'	>	*∅-m̩q̩s̩s̩	>	*li-m̩q̩s̩s̩	'dresses'
	3			9		10	

Once again, data from the present corpus provide no evidence to suggest that either of these attempts to regularize a paradigm occurs, though again, such reanalyses have occurred in the history of Niger-Congo (Demuth, Faraclas and Marchese 1986). The following section provides examples of what *does* happen in the gradual learning and production of Sesotho noun class prefixes.

3.2 The Acquisition of Noun Class Markers

Before the age of 2 years, nouns of all classes frequently occur with ∅ prefix. Until the age of 2½ years nouns continue to be used with ∅ or a "partial" prefix. Nasal classes 1, 3, 4 and 6 (*m̩q̩*, *m̩q̩*, *m̩s̩*, *ma*) are produced with N, or NV, earlier and with more consistency than non-nasal CV prefixes, which first appear with just a vowel. Phonological variation in the use of a single noun class prefix by one child during consecutive utterances is extremely common. Example (6) illustrates such a case, where ∅, -V and full CV forms are all used in one lengthy discourse sequence concerning green corn stalks. Judgements as to the singular or plural nature of the utterances are derived from discourse contextual information. Adult forms are provided in parentheses below.

(6)	(25.0 months):	
	sg	pl
	p ^h onko	phok̩
	a-p̩k̩o	a-pok̩
	a-paka	ma-p̩n̩k̩ə
	(l̩s̩-ph̩óq̩)	(ma-ph̩óq̩)
	'green corn stalk'	'green corn stalks'

Children progress through a stage of several months where a single lexical item may be rendered with no prefix, V- or full CV-, even in consecutive utterances in the same contextual environment. Connelly (1984) also reports similar findings.

After 3 years of age, when Sesotho speaking children exhibit correct productive use of all singular and plural prefixes, they occasionally omit prefixes of classes 5, 7, 8 and 10 (Sesotho *l̩s̩*, *s̩s̩*, (*N*)*li* and (*N*)*li*, containing [-grave] consonants) when an adjunct (demonstrative, possessive etc.) follows the noun:

- (7) (25.0 months)
 ponko láne
 (lɛ-phoqo lá-ne)
 green corn stalk that
 'that green corn stalk'

Some monosyllabic nouns also occur with no prefix in the speech of 4 year old children when an adjunct follows (*li-jo* > *jo* 'food,' *sɛ-qq* > *qq* 'corn cob,' *lɛ-joɛ* > *joɛ* 'stone'). Omission of these particular class prefixes when the noun is used with an adjunct is a phenomenon also found in adult Sesotho speech, and may represent an initial stage of prefix loss in transition for Sesotho (cf. Demuth, Faraclas and Marchese 1986). Note that this strategy is also employed by Walpiri, where no agreement marking is needed when a modifier immediately follows its nominal head.

Table 2 below summarizes the developmental acquisition of noun class prefixes as used in spontaneous speech by the Sesotho speaking children in this study:

- 25-26 months: \emptyset , -V, CV
 28 months: alternations between \emptyset , -V, N, C-, CV, but mostly NV with nasal classes (1, 3, 4, 6)
 30 months: full appropriate prefix in the majority of cases. (classes 5, 7, 8, 10 occasionally omitted with adjunct)
 36 months: all prefixes used in appropriate form
 46 months: selective \emptyset prefix with classes 5, 7, 8, 10 when used with adjunct

Table 2. Acquisition of Sesotho Noun Class Prefixes

Counter to the predictions, these data suggest that productive use of noun class marking occurs gradually and with no overgeneralizations. It would appear that the form of the current predictions do not adequately address the phenomena to which the Sesotho speaking child responds. This issue is pursued in the following sections.

3.3 Marking of Noun Classes in Experimental Conditions

The findings for spontaneous Sesotho data contrast with experimental results from closely related Siswati (Kunene 1979), where children of ages 4½ to 6 *did* overgeneralize some prefixes. These children were given novel word forms and Siswati nouns out of context and asked to provide the corresponding singular or plural form of the noun. Table 3 below indicates the overgeneralizations which occurred:

Class	Siswati	Siswati Expt. (overgeneralizations)
1/2	umu/ba	umu/bo (2a)
1a/2a	\emptyset /bo	\emptyset /bo
3/4	umu/imi	umu/bo (2a)
5/6	li/ema	li/ema
7/8	si/ti	si/ti (i/ti)
9/10	in/tin	i/ti
11/10	lu/tin	li/ema (5/6) (i/ti)
14	bu	bu/bo-bu (+2a)
15	ku	ku/bo-ku (+2a)

Table 3. Siswati Noun Class Prefixes and Experimental Overgeneralization (E. C. L. Kunene 1979—4½ to 6 year olds)

Here we note (a) the use of 9/10-like class markings for classes 7/8 and 11/10, and (b) the overextension of class 2a to classes 2 and 4, and added to the liquid/mass class 14 and the infinitival class 15 (apparently analyzed only as stems, as they have no singular/plural alternations). There are also cases of class 11/10 being overgeneralized to classes 5/6, apparently due to phonological similarity. What is perhaps most striking, however, is that these same children did *not* make these or any other overgeneralizations in spontaneous speech. This would indicate a major difference in the linguistic nature of these productive contexts. In natural speech situations agreement information is available to help determine class affiliation, while in these experimental tasks it was not. Children in this experimental situation appear to have treated it as a "fit the paradigm" task. Many of our previous predictions for the acquisition of noun class prefixes are upheld in this case. It would be interesting if these same overgeneralizations occurred in an experimental task where the children were asked to use the given nouns in complete sentences.

3.4 Noun Class Acquisition in Zulu

According to Suzman (personal communication), Zulu speaking children spontaneously produce nouns with full prefix forms (although apparently with some overgeneralizations to the frequency and default classes) before the age of two, several months earlier than either Siswati or Sesotho speaking children. She notes that this may be due, in part, to the different nature of prefixes in these three languages. Zulu, as well as several other Bantu languages, is characterized by pre-prefixes, where the CV prefix has a copy (or near copy) of the prefix vowel prefixed to it, resulting in VCV prefix forms. Furthermore, these prefixes are never dropped in adult speech, as they optionally are in Sesotho. Suzman proposes that these prefix forms, with more consistent use and more phonetic

information, may be more stable (both synchronically and historically) than those of Sesotho, and therefore easier for children to learn. Siswati, with only some pre-prefix forms, falls somewhere in between Zulu and Sesotho.

4 The Agreement System

4.1 Potential Problems for the Acquisition of Bantu Agreement Systems

As regards the Sesotho agreement system, one might expect a reduced number of distinctions to be made initially (one form, one function), with fully productive agreement developing only after the marking of nouns with their appropriate class marker. If the agreement system was originally represented by children as one set of singular/plural markers, one would predict that the "default" and most frequently used class 9/10 might be the one to be overgeneralized. Thus, there would be a collapsed agreement system where nouns of all classes would assume one agreement marker, as in the hypothetical case of possessives illustrated below:

(8) a.	mq-se	oa-ka	}	*ea-ka 9 my
	3 dress	my		
b.	se-fate	sa-ka		
	7 tree	my		
c.	0-ntja	ea-ka		
	9 dog	my		
d.	bq-ho be	ba-ka		
	13 bread	my		

While such cases do occur in language contact situations and in historical change (Demuth, Faraclas and Marchese 1986), it is not entirely clear that this is the process which is involved in Sesotho acquisition.

4.2 The Acquisition of Agreement Markers

At two years subject concord, and sometimes focus marking, tense/aspect and object clitics (all pre-verbal morphology) are collapsed into a nonspecific pre-verbal intonational envelope which surfaces as an approximation of *a*-, *e*-, or is entirely omitted.

- (9) (25.0 months)
 a lahlile
 (kɛ li lahl-ile)
 I them throw-perf.
 'I threw them away.'

Occasionally at this time, but increasingly over the next few months, subject concord and tense/aspect marking become distinguishable and consistently present, if not always in their correct phonological shape. Object clitics become evident at the same time, 1st person *N*- being most phonologically prevalent, while other CV and V clitics begin to take consistent phonological shape by 2½ years.

- (10) (25.0 months)
 a ɛ shápa
 (oa n-shápa)
 he/she me-lash
 'He/She is lashing me.'

Adjectives and demonstrative, possessive and independent pronouns are already in productive use by the age of two, surfacing frequently, but not always with appropriate concordial agreement. Here both of the forms (a) and (b) are found within several utterances of each other, while the form in parentheses represents the full adult form.

- (11) (25.2 months)
 (a) kolo sáne
 (b) kolo eáne
 (sekolo sá-ne)
 7 7
 school that
 'That school.'

While utterance (a) uses appropriate class 7 marking with the demonstrative pronoun, utterance (b) looks phonologically like a class 9 demonstrative. Many of the child's words at age 2 belong to class 9/10 and there is some tendency for what appears to be overgeneralization of class 9/10 agreement forms, as seen below in the case of noun-possessive-adjective. The line in parentheses again provides the appropriate adult prefix and agreement forms:

- (12) (25.2 months):
 Bóná nto ea-ka é-nke
 9? 9? 9?
 (lɛ-qtɔ lá-ka lɛ-lɛ-tlɛ)
 5 5 5-5
 look-at foot my beautiful
 'Look at my pretty foot.'

Modifiers which appear not to agree with their nominal heads frequently occur when the prefix of the noun has not been specified, as seen in

Example (12) above (*nto* rather than *lɛ-ɔtɔ*, often *lento* in adult speech). There are, however, a few cases where the noun is clearly marked and the agreement marker still takes a different form:

- (13) (25.2 months)
 Lɛbese kɛ́ éo é pápa
 5 9?
 (lɛ-bese kɛ́ léo lé pápa)
 5 5
 milk is here and porridge
 'Here's some milk and porridge.'

Notice here that the /l/ is missing from the demonstrative pronoun *leo*, but also from the conjunction *le*. It is this kind of evidence which might support Chimombo's³ suggestion that such errors may be due to inaccurate articulation at this stage. A much more in depth study of early Sesotho phonological development is needed to determine what phenomena can be attributed to articulatory problems and what to morphological overgeneralization. However, preliminary findings (Demuth 1986) show that both unstressed syllable deletion and initial consonant deletion are extremely productive phonological processes between 2 and 2½ years.

As mentioned in Section 3.2, once the nominal prefix forms are produced with fair phonetic accuracy around 2½ years, some prefixes are optionally omitted. There appears to be little problem in selecting the appropriate agreement forms in such cases. Thus, we find numerous examples of the following type, both in the speech of children under 3 years and with older children and adults. Here a noun is first used with no noun class marker, then postposed with full marking in the second sentence.

- (14) Two boys are looking at pictures of animals in a book. Mololo (5.2 yrs.) has just declared that they are pictures of mice. Hlobohang (36.2 months) retorts:
 -Talí ha lí-ɛo ká mɔna.
 Ø 10
 mouse NEG they-exist in here
 'Mice, there aren't any in here.'

³ Moira Chimombo (personal communication), in a study of Chichewa speaking children, suggests that apparent overgeneralization to the default class may in fact be a lack of young children's ability to produce phonologically distinct forms of agreement at this stage.

- Ha lí-ɛo li-talí Bolólo! Kɛ́ tšóenɛ!
 10 10
 NEG they-exist mice Mololo it's baboon
 'There aren't any mice Mololo! It's a baboon!'

Even at this stage, where agreement appears to have been learned and applied correctly, we find the occasional example of apparent nonagreement such as the following:

- (15) H (36.2 months) and his grandmother are identifying different food types on a nutritional food category poster. Grandmother asks H where an egg is and he replies.
 Kɛ́ lé-ná lɛ-hé
 5 5
 'It's here, the egg.'
 Lɛ́ teng - a má-ngata
 5 6 6
 'It's here—a lot of them.'
 (later, after discussion of other foods he says slowly ...)
 lɛ-hé á má-ngata
 5 6 6
 egg many
 'Egg—there are lots.'

It is not clear here if the noun is (a) being treated as a CVCV stem with no prefix, with plural marking specified only on the adjective, or (b) if the child started to say 'egg,' and then wanted to say 'a lot' without having to go back and say 'eggs' again. Alternatively, he may have been influenced by the grandmother's modeling of singular *lɛhɛ*. Such cases do not appear to be productive and one could hypothesize that adult speakers might also produce such utterances on occasion. It is noteworthy, however, that in this case, where noun and adjective do not agree in number, they still agree in class pairing. In other words, random errors like those found in the experimental Siswati results and in bilingual Chichewa/English speakers (Chimombo p.c.) are not generally found in spontaneous Sesotho agreement forms.

In sum, the acquisition of concordial agreement, like that of nominal marking, is a gradual process which has already begun prior to 2 years of age, most notably with demonstratives and possessives. It continues until the age of 3 when most subject concords and object clitics, demonstrative, possessive and relative pronouns, adjectives and some numerals are used with agreement forms of the appropriate phonological shape.

The only overgeneralization which occurs between 2 and 2½ years of age is a slight tendency for nouns of all classes to take class 9/10 agreement forms when the noun itself is not overtly marked, or at least many surface as such phonologically. This may be due to the large proportion of class 9/10 lexical items in the children's vocabulary at that time, or it may be due to the relative articulatory ease of the class 9 *e* agreement form over others. Comparative evidence from other Bantu languages may be of some assistance in determining which of these possibilities is most likely.

5 Discussion

If children were using semantic criteria as a means for learning Bantu noun class and agreement systems we would anticipate cases of overgeneralization, where a paired body part—say *tsebε/li-tsebε* 'ear, ears' (class 9/10) would be used with the class prefixes of other paired body parts—*lε-ihlo/ma-hlo* 'eye, eyes'; *lε-qtq/ma-qtq* 'foot, feet,' (class 5/6). We find no such cases in our corpus. As to the human and mass/abstract noun classes which are still productive, there is no apparent evidence that 2-3 year old children make these distinctions. If we were to find that *ngaka* 'doctor' (class 9/10) was used with human class prefixes or agreement markers (class 1/2), we would say that there seems to be some semantic influence in the learning of this agreement system. Again, such evidence is lacking from the present corpus. Bantu nouns having "derivative gender" (Greenberg 1978) can be assigned to different classes with a change in meaning. A 'person who sings' *mq-bini* (class 1/2) becomes a 'professional singer' *sε-bini* (class 7/8) with a shift in class. Again, there is no evidence to suggest that 2 and 3 year old children have control of or even access to this phenomenon as a productive part of their grammar at this stage.

How does one explain the discrepancies between the findings in this study and those of language contact and experimental situations? It would appear that processes of leveling and overgeneralization of agreement are accelerated in "non-natural" production environments. It is primarily in these cases that we find errors in nominal class assignment. Speakers in these situations appear to rely on extra-phonological criteria, such as phonological similarity to other noun class pairings, in their class assignment of unknown forms. In contrast, young first language learners appear to focus not simply on the nouns themselves, but on the entire nominal or verbal phrase where concordial agreement information is available. It is proposed for Sesotho that noun and modifier are attributed a class feature specification and are treated as some kind of prosodic, cognitive, or grammatical unit. Young language learners may adopt such a unit as a basic learning construct, using concord agreement productively while gradually coming to fine-tune the appropriate

phonological marking for nouns. Once children become aware of this prosodic association feature, they then have access to tools necessary for learning and productively using the rest of the language. Comparative data from Chichewa and Zulu will help us to better understand this process.

5.1 Cross-Linguistic Agreement Acquisition

How does the learning of agreement develop in other languages? What kinds of mental constructs help in the learning of other agreement systems? It is difficult to know, in part because of the large range of different types of agreement found from one language family to the next, and in part due to the very different sources of data on which other studies are based, some drawn from natural speech and others experimental, some using 2-3 year olds and others using older children. A brief summary of some of the major cross-linguistic findings is found below.

In Romance languages (Clark 1985) there are early errors in article-noun agreement. In French, nouns are first used without articles. When articles start to be used there are numerous errors in appropriate gender assignment, but by the age of 3 most articles agree in gender with their nouns. A few problems persist in the appropriate gender marking of adjectives, and the masculine singular pronoun *il* is overgeneralized until 3 years or longer. Greenberg (1978) has demonstrated that Niger-Congo noun class markers are derived from demonstratives by much the same process that Romance articles were. We have noted that in both French and Sesotho nouns are first produced in simple root form with neither article nor noun class prefix. But here the similarity ends. Sesotho noun class prefixes do not function as definitizers (as pre-prefixes can in Zulu, Xhosa, etc.). Definiteness is achieved through the use of demonstrative and possessive pronouns. Sesotho nouns are "linked" with their definitizers at an earlier stage and with fewer errors than are French nouns with their articles.

In experimental conditions with older (6-8 years) French speaking children Karmiloff-Smith (1979) provided children with dolls and mismatched gender on corresponding articles and nouns which referred to the dolls. The 6 year olds changed the nouns or articles to agree with each other, rather than changing one of them to agree with the natural gender of the doll. Older children, in contrast, relied more on the sex gender of the doll in determining appropriate grammatical gender. Likewise, young Hebrew speaking children (Berman 1981, Levy 1983) use primarily phonological cues on the noun rather than contextual cues from adjectives or pronouns in their formation of plurals. In other words, erroneous plural marking occurs primarily in cases of phonologically irregular nominal endings. Levy (1983) notes that, in the period from 2-3

years, there was no use of sex gender knowledge in the early application of plural formation nor in adjectival agreement. On the other hand, it appears that the task of learning the plural forms probably helps in the learning of the gender agreement system. Thus, as in Sesotho, Hebrew speaking children rely on phonological rather than semantic cues to inform them of number and gender agreement, but unlike the Sesotho case, they appear not to use other grammatical agreement cues to help them in this task. This reliance on phonological cues as opposed to semantic natural gender cues also appears to hold for Russian (Popova 1973, Gvozdev 1961), German (Bohme and Levelt 1979, Mills 1985), Serbo-Croatian (Radulovic 1975), and Polish (Smoczyńska 1985). Only in a comprehension study of Icelandic pronoun gender (Mulford 1985), with children aged $4\frac{1}{2}$ to $8\frac{1}{2}$ years, are semantic criteria apparently used as a means for determining gender agreement. Icelandic nominal endings represent case, number and gender, nouns of one gender class have inconsistent phonological shapes and there is no phonological correspondence between nominal and pronominal forms. In such cases, then, where phonological cues to agreement are obscure, children (especially past 3 years of age) may begin to look for semantic cues to facilitate the learning of an agreement system.

5.2 Summary

In sum, only two of our original predictions were partially upheld: (a) that children might have problems learning prefixes and (b) that the agreement system might be collapsed to one form. With regard to the later, there appears to be a tendency around 2 years of age for agreement forms to surface with 9/10-like marking.

Whether this is due to poor phonological differentiation at this stage or actual misassigning of class marking is unclear. With regard to the former, the "difficulty" in the use of noun class markers is manifest not by the use of erroneous forms through overgeneralization, but rather by their relatively late productive use. When noun class markers do appear, however, they are used in correct form. The developmental process of noun class and agreement marking is outlined in Table 4.

Why were not more of the original predictions, based on studies of the acquisition of other languages, upheld for the acquisition of noun class marking and agreement in Sesotho? In part, perhaps, due to our inadequate understanding of how noun class marking and agreement function in this and other very different Bantu languages. Many of the predictions originally proposed here were founded on the understanding that the Bantu agreement system represents a paradigm problem like those found in Indo-European and Semitic languages. The phenomena exemplified in this study, however, indicate that this may not be the case. It appears that, unlike French, where children seem to learn nouns in isolation, and later learn what gender class they belong to, Sesotho nouns

- 2 years**—Agreement marking is productive, especially with demonstratives and possessives. There appear to be some overgeneralizations to class 9/10, probably due to the fact that the majority of the nouns in the child's vocabulary belong to this class and that nouns are largely unmarked for class at this time. There may also, however, be phonological factors involved.
- $2\frac{1}{2}$ years**—Subject concord and object clitics are still frequently phonologically obscure, but most other agreement marking is distinct and often appropriate to specific classes. Nouns are usually marked with full and appropriate prefixes.
- 3 years**—All agreement markers are phonologically distinct and appropriate to class. Nouns are all appropriately marked, though nouns of some classes optionally occur with no prefix when an agreement adjunct (most frequently a demonstrative, possessive, independent pronoun or adjective) is present, an attribute of adult speech as well.

Table 4. Development of Noun Class and Agreement Marking in Sesotho

are learned in conjunction with their gender class features, even though the nouns themselves are not marked for these features until later. The Bantu agreement system is phonologically transparent and pervasive, suggesting the application of a class feature to phrases rather than to individual nouns. A much more in depth study of early phonology in these languages, the role of tone and other lexical and sentential prosodic features, a further understanding of the grammatical and discourse functions of the agreement system, as well as more complete evidence from different Bantu acquisition studies will help us to better understand the phenomena presented here.

References

- Berman, R. 1981. Regularity vs. anomaly: the acquisition of Hebrew inflectional morphology. *Journal of Child Language* 8(2):265-282.
- Bohme, L. and W. J. M. Levelt 1979. Children's use and awareness of natural and syntactic gender in possessive pronouns. Paper presented to Conference on Linguistic Awareness and Learning to Read, Victoria, B. C.
- Burton, M. and L. Kirk 1976. Semantic reality of Bantu noun classes: the Kikuyu case. *Studies in African Linguistics* 7(2):157-174.
- Clark, E. 1985. Acquisition of Romance, with special reference to French. In D. I. Slobin (Ed), *The Crosslinguistic Study of Language Acquisition*. Hillsdale, N. J.: Lawrence Erlbaum Associates.

- Connelly, M. 1984. *Basotho Children's Acquisition of Noun Morphology*. Doctoral dissertation, University of Essex.
- Demuth, K. 1983. *Aspects of Sesotho Language Acquisition*. Bloomington: Indiana University Linguistics Club.
- Demuth, K. 1986. Phonological processes in Sesotho acquisition. Ms.
- Demuth, K., N. Faraclas and L. Marchese 1986. Niger-Congo noun class and agreement systems in language acquisition and historical change. In C. Craig (Ed), *Noun Classes and Categorization*. Amsterdam: John Benjamins.
- Greenberg, J. H. 1977. Niger-Congo noun class markers: prefixes, suffixes, both or neither. *Studies in African Linguistics, supplement 7*, 97-106. Papers from the Eighth Conference on African Linguistics.
- Greenberg, J. H. 1978. How does a language acquire gender markers? In J. H. Greenberg (Ed), *Universals of Human Language 3*, 47-81. Stanford: Stanford University Press.
- Gvozdev, A. N. 1961. Formirovanie u rebanka grammatic es kogo stroja russkogo jazyka. Izd-vo Akademii Pedagogiceskix Nauk RSFSR, 1949, Moscow.
- Heine, B. 1982. African noun class systems. In H. Seiler and C. Lehmann (Eds), *Apprehension: das sprachliche Erfassen von Gegenständen*. Teil II. Tübingen: Gunter Narr.
- Karmiloff-Smith, A. 1979. *A Functional Approach to Child Language: A Study of Determiners and Reference*. Cambridge, England: Cambridge University Press.
- Kunene, E. C. L. 1979. *The Acquisition of Siswati as a First Language: A Morphological Study with Special Reference to Noun Prefixes, Noun Classes and Some Agreement Markers*. Doctoral dissertation, University of California, Los Angeles.
- Levy, Y. 1983. The acquisition of Hebrew plurals: the case of the missing gender category. *Journal of Child Language* 10(1):107-122.
- Mills, A. E. 1985. The acquisition of German. In D. I. Slobin (Ed), *The Crosslinguistic Study of Language Acquisition*. Hillsdale, N. J.: Lawrence Erlbaum Associates.
- Mulford, R. 1985. Comprehension of Icelandic pronoun gender: semantic versus formal factors. *Journal of Child Language* 12(2):443-453.
- Popova, M. F. 1973. Grammatical elements of language in the speech of pre-school children. In C. A. Ferguson and D. I. Slobin (Eds), *Studies of Child Language Development*. New York: Holt, Rinehart and Winston.

- Radulovic, L. 1975. *Acquisition of Language: Studies of Dubrovnik Children*. Doctoral dissertation, University of California, Berkeley.
- Slobin, D. I. (Ed) 1985. *The Crosslinguistic Study of Language Acquisition*. Hillsdale, N. J.: Lawrence Erlbaum Associates.
- Smoczyńska, M. 1985. Acquisition of Polish. In D. I. Slobin (Ed), *The Crosslinguistic Study of Language Acquisition*. Hillsdale, N. J.: Lawrence Erlbaum Associates.
- Stucky, S. 1978. How a noun class system may be lost: evidence from Kituba (Lingua Franca Kikongo). *Studies in the Linguistic Sciences* 8(1):216-233.