2012

Children's Acquisition of Subject Markers in isiXhosa

Mantoa Smouse
University of Cape Town

Sandile Gxilishe
University of Cape Town

Jill de Villiers
Smith College, jdevilli@smith.edu

Peter A. de Villiers
Smith College, pdevilliers@smith.edu

Children's Acquisition of Subject Markers in isiXhosa

Mantoa Smouse

Sandile Gxilishe

(University of Cape Town)

Jill G. de Villiers

Peter A. de Villiers

(Smith College)

Revised Chapter. October 17 2011.

1.0 Introduction

The study of African languages is a rapidly growing area of investigation in linguistics. It has become clear that there is a rich fund of information in the large number of African languages falling into several families that can inform the science of the universal and particular features of human language. Although the Bantu language family has no historical relation to the family of Romance languages, fruitful discussion has begun among researchers seeking to illuminate some of the special features that are shared (De Cat and Demuth 2008), especially in the area of concern here, namely clitics. But the definition of clitic within Bantu is not without controversy. In order to understand how studying acquisition can contribute to the debates on the nature of Bantu morphosyntax, we open this chapter with a brief introduction of the various proposals regarding the status of subject markers (SM) and object markers (OM) in Bantu.

1.1 The status of the subject, object, SM and OM in isiXhosa

IsiXhosa, being a typical Bantu language has 15 noun classes, normally referred to as genders in other languages. The numbering system of these noun classes is a result of systematic studies of nouns in Bantu starting in the 19th century and later developed by Doke (1954) and Meinhof (1948) amongst others. The nouns in isiXhosa are grouped in such a way that the singular and plural pairs fall into two adjacent noun classes. For example, the plural form of nouns in class 1 is labeled as class 2 and the plural form of nouns in class 3 is labeled as class 4. The gaps in the cataloging are a consequence of the uniform labeling of nouns across Bantu languages. This uniform labeling system makes

comparisons between the different Bantu languages more systematic. See Table 1 for a complete list of noun classes in isiXhosa.

Table 1. IsiXhosa noun classes and their grammatical markers.

Noun class	**Noun**	**Noun Prefix**	**Subject Marker**	**Object Marker**	**Absolute Pronoun**	**Gloss**
1	umntu	um-	u-	-m-	yena	person
1a	umama	u-	u-	-m-	yena	mother
2	abantu	aba-	ba-	-ba-	bona	people
2a	oomama	oo-	ba-	-ba-	bona	mothers
3	umvundla	um-	u-	-wu-	wona	hare
4	imivundla	imi-	i-	-yi-	yona	hare (Pl.)
5	iblomu	ili-	li-	-li-	lona	flower
6	amablomu	ama-	a-	-wa-	wona	flowers
7	isihlangu	isi-	si-	-si-	sona	shoe
8	izihlangu	izi-	zi-	-zi-	zona	shoes
9	incwadi	in-	i-	-yi-	yona	book
10	iincwadi	ii-	zi-	-zi-	zona	books
11	uthando	ulu-	lu-	-lu-	lona	love
14	ubusi	ubu-	bu-	-bu-	bona	honey
15	ukutya	uku-	ku-	-ku-	kona	food

The basic word order for isiXhosa is SVO. The verb hosts a number of prefixes and suffixes, amongst which fall the causative, applicative, reciprocal and passive. The final ending of the verb, often called the final vowel, also marks tense, aspect, modality and negation. Affixes associated with agreement, tense, aspect and mood are also found on the left edge of the verb. The subject marker and the object marker make it possible to move the lexical arguments of the verb to various positions in relation to the verb and the other verbal arguments. The examples below illustrate these facts.

1) Umama u- fund- el- a abantwana incwadi
   1.mother 1.SM- read- APPL- FV 2.children 9.incwadi[1]
   'Mother is reading the children a book'

2) Umama u- ya- ba- fund- el- a
   1.mother 1.SM- TNS- 2.OM- read- APPL- FV
   'Mother is reading to them'

3) Umama aka- ba- fund- el- i
   1.mother 1.NEG.SM- OM- read- APPL- NEG
   'Mother is not reading to them'

4) U- ya - ba- fund –el- a incwadi abantwana umama
   SM- TNS- OM- read- APPL-FV 9.book 2.children 1.mother
   Lit 'She-them-read-to book children mother'
   'Mother *is reading* the children a book'[2]

In sentences (1-4), the subject *umama* enters into an agreement relation with the verb. A similar relationship between the direct object *abantwana* and the verb is expressed in sentences (2-4). The relation is expressed through the subject marker (SM) and the object marker (OM) encoding features of person, number and class (gender). The order and position of the SM and OM is fixed. Whereas the SM is obligatory in isiXhosa, the lexical subject and OM are optional. The structural representation of the verb and its arguments

[1] SM=Subject Marker; OM=Object Marker; APPL= Applicative; FV= Final Vowel; TNS= Tense; A number (as in 1.SM) indicates noun class membership

that we adopt in this study follows from Koopman and Sportiche's (1991) proposal. In this framework the arguments of the verb are merged within the VP shell. The movement of the verb and its arguments is driven by the need to check features (Rizzi 1997; Chomsky, 1995).

The subject is assumed to start off in spec *v* (See Figure 1*).* Since the subject DP is the closest, it is the one that is attracted to Spec, AgrS to check the phi-features which are spelled out as SM on AgrS. The movement of the subject is triggered by EPP (subject requirement) on AgrS.

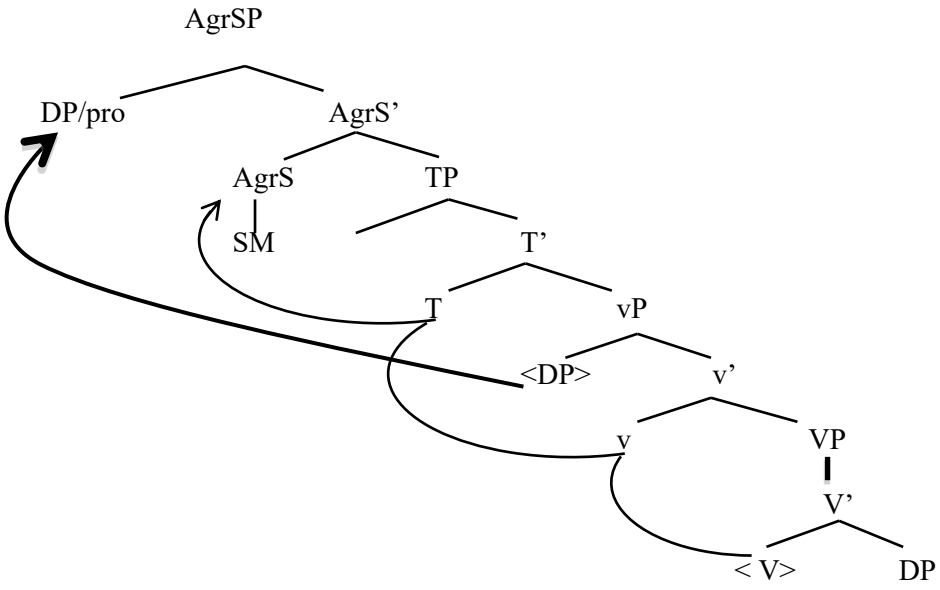


Fig. 1 IsiXhosa subject and verb movement.

As will be described, there are a number of positions associated with the subject in Bantu. The differences rest on whether the subject is regarded as a Topic, in which case it would be in Spec Top (above AgrSP in figure 1). If it is a standard subject it can be on spec AgrS or Spec T, depending on whether one adopts the split inflection hypothesis or

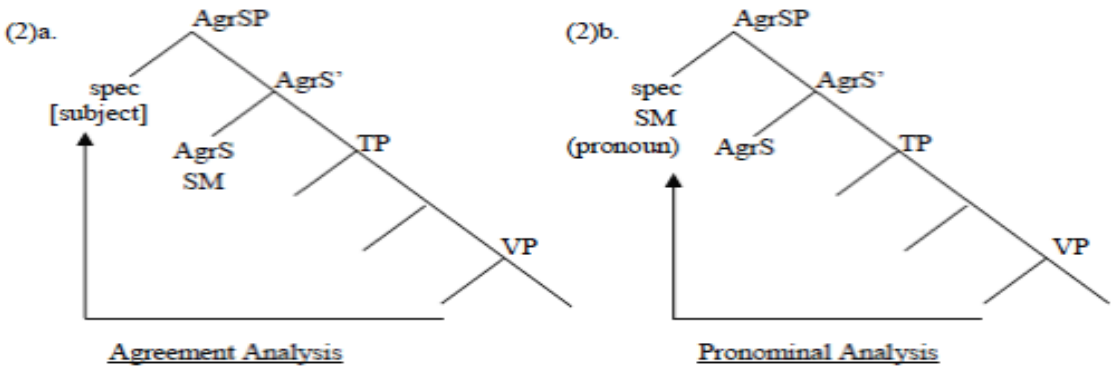
---

[2] Italics added for emphasis

whether the various inflection markers are merged on T. For the purposes of this paper, we adopt the split inflection framework as it better captures the order of these affixes in Bantu.

The verb also has features such as tense, aspect and mood that need to be valued. The verb then moves through various heads driven by these features and sensitive to locality constraints on movement. The verb which bears inflectional features associated with tense, aspect and mood, moves through the heads, including *v* which has been proposed to host argument-changing affixes such as causative, applicative, reciprocal and passive attested in Bantu languages (Baker 1988). This feature-checking relationship and the realization of the SM and OM features is what this study seeks to explore. The first question that arises with respect to Bantu relates to whether the SM and OM are reduced pronouns (pronominal clitics) or agreement markers. The second question has to do with the status of the subject in Bantu.

Based on the literature, the question about the status of SM / OM can be answered in several ways. Some scholars treat the SM and OM as pure agreement markers (see Buell 2005 (for Zulu), Deen 2006a (for some varieties of Swahili) amongst others). Other scholars subscribe to the notion of SM being ambiguous between pronominal clitic and agreement marker whereas the OM is unambiguously a pronominal clitic (Bresnan and Mchombo 1986 and 1987; Keach 1995; but see Woolford 2000 for an opposing view). In the third approach the SM and OM are both treated as pronominal clitics (Zwart 1997; Zeller 2008). Let us first look at how the three approaches differ structurally ((2) a & b from Deen 2006b: 226).



(2)a represents the possibility of SM as an agreement marker.The SM is the head of AgrS, and the subject occupies the spec position. In this instance the SM functions purely as an agreement marker which enters into an agreement relation with the subject in spec AgrS. If the subject is null, pro retains the appropriate phi features and licenses SM (Note to the editor: the question was "Does pro licence SM? Yes in an agreement analysis pro licences SM).

2(b) represents the possibility of SM as a pronominal affix. SM occupies the subject position in spec AgrS. AgrS is a null head in this instance. The SM has a pronominal function in this case. In this approach a lexical subject is represented as occupying the specifier of the Topic node which is above AgrSP. The SM is in spec AgrS, which performs the function of the subject. In this position the SM bears the theta role associated with the topic.

A further possibility exists, combining 2(a) and 2(b). In this configuration the SM is in AgrS, but the subject, which can either be a lexical subject or a null pro, occupies the specifier of Topic. That is, the Topic could license the SM either in AgrS or spec of AgrS. (NB: again, yes this is correct) The possibilities have fueled studies on the nature of the subject in Bantu. The treatment of subjects as a topic in Bantu gathered momentum after

Bresnan and Mchombo's (1986) proposal that the SM in Chichewa is ambiguous between the subject agreement and anaphoric agreement. The OM on the other hand, is treated as a pure incorporated pronoun in Chichewa. The central claim of this analysis is that there is no grammatical relation between left-dislocated topics and the incorporated clitic pronoun. The association between the subject and the SM obtains through an anaphoric binding relation. Let us now look more closely at the three main approaches to SM and OM in Bantu.

The view of SM and OM as agreement markers has received more attention in the literature. Buell's (2005) study of Zulu morpho-syntax discusses the interaction between SM, tense, mood and aspect. Buell concludes that since subject markers interact[3] with the various inflectional heads, they require an agreement analysis because pronouns do not interact in this way with inflection. In addition, using evidence from non-agreeing subjects, Buell concludes that these subjects are not in Topic position. Buell further provides evidence for the treatment of OM as an agreement marker, based on VP-ellipsis in Zulu (Buell 2005). Buell notes that under VP ellipsis, the OM in Zulu becomes obligatory. Using linear order and constituency tests, Buell further suggests that the position of the subject and object in both agreeing and non-agreeing subject sentences is the same. He claims that the various alterations observed between the SM and OM are driven by constituency rather than a focus feature (Buell 2005)[4].

---

[3] For example, isiZulu marks compound tenses by means of an auxiliary verb and a lexical verb. The auxiliary and lexical verb both bear a subject marker: *Wa(1.SM)-be e-(1.SM)hambile (he/she had left).* The SM in this sentence is different from SM in the Indicative positive, suggesting an interaction with the remote past morpheme. (See Buell 2005:51).

[4] See Buell (2005) chapter 5 for a full discussion of agreeing and non-agreeing subjects and object.

Zwart (2000) on the other hand proposes that SM and OM are pronouns rather than agreement markers in Swahili, a view which is opposed by Deen (2006b). Zwart argues that:

> The widespread use of the subject agreement marker outside of verbal morphology suggests that the subject agreement marker is not an agreement marker in the strict sense, i.e. an affix with no other function than to mark the congruence of the subject and the verb. Rather, the distribution of the agreement marker suggests that its status is closer to that of a pronoun.
>
> Zwart (2000:4)

Zwart compares the SM to personal pronouns in Swahili. He proposes that if SMs are pronouns, then they are not personal pronouns but rather resumptive pronouns which are comparable to clitics or bound demonstratives found in other languages (Zwart 2000). In addition, Zwart points out that the nature of the various tense and aspect markers can be used as evidence against an analysis of SM as an agreement marker. He claims that because the tense morphemes have a lexical origin, they still act as verbs which host the proclitic subject markers as well as the enclitic relative marker.

The strongest argument against an agreement analysis is put forward by Zeller (2008) in a study of Zulu that examines the lack of agreement between the verb and the subject when the expletive is used. Zeller is of the view that the SM is only licensed if the subject has moved out of *v*P. The difference between Zeller and other proponents of the pronominal analysis of SM is that by treating SM as an antifocus marker, he is able to do away with stipulations associated with lack of agreement in locative inversion as well as pro-drop in Bantu. These stipulations were used as support for the topic analysis of subjects in Bantu. Zeller proposes that the SM in Bantu is not a morphological reflex but rather a case of clitic doubling. The SM doubles the subject whenever the subject has moved into spec T. More importantly the SM is treated as a functional nominal head n* which is

merged with the subject before the subject moves to spec T. In this analysis, the SM is regarded as a determiner-like element which is the highest functional head of the DP, which may or may not have a DP complement. Since SM is a functional element, it can move independently of the subject. This movement is determined by the features[5]. When the SM is bare (does not have a DP complement), the SM bears the theta-role associated with the subject, which he proposes is overtly realized as the SM, giving rise to a pronominal interpretation (Zeller 2008). Zeller concludes that "what has traditionally been called subject "agreement" in Bantu is rather a case of clitic doubling whose effects on the information structure of the sentence are comparable to those that have been observed in other clitic-doubling languages such as Albanian and Greek" (Zeller 2008: 247). As a close relative of Zulu, isiXhosa might be subject to a similar treatment. These possibilities are represented in Table 2.

The issues of the status of OM are also unresolved (Bresnan and Mchombo 1986; Buell 2005), but there is perhaps more agreement that it should be regarded as a pronominal clitic. Buell (2005) provides a summary of the complex conditions of this use where he also discusses its interaction with the so-called long and short forms of tense in Zulu.

Table 2. The proposed Positions for SM in Bantu

Language	**Proposal**	**Position of SM**	**Position of lexical subject**	**Position of empty subject**	**Pronoun or agreement?**
Chichewa	Bresnan & Mchombo	Head of AGR	Spec of Topic	Spec of AGR	Agreement

[5] See Zeller (2008) for an elaborate discussion of the anti-focus features associated with SM in Bantu.

Chichewa	Bresnan & Mchombo	Head of AGR	n/a	n/a	Anaphoric pronoun
isiXhosa, Zulu, Swahili	Visser, Buell, Deen	Head of AGR	Spec of AGR	Spec of AGR	Agreement
Swahili	Zwart	Spec of AGR	Spec of Topic	n/a	Anaphoric pronoun
Zulu	Zeller	Head of T(Infl)	Spec of T(Infl)	pro IS SM	Pronominal clitic / (clitic doubling)

1.2 The absolute pronoun in isiXhosa

So far, we have briefly described the relation between the SM, OM and lexical subject and object. IsiXhosa also has a set of pronouns, often referred to as absolute pronouns in Bantu. The absolute pronoun may occur with or without the lexical subject in isiXhosa. A list of absolute pronouns is given in Table 1 above. The absolute pronoun in isiXhosa has been classified as one of the nominal modifiers which behave in the same manner as quantifiers (Du Plessis and Visser 1992). Visser (2008:18) classifies the absolute pronoun as a nominal modifier "with an inherent lexical semantic definiteness property." As such, the absolute pronoun has relative freedom in terms of its position in relation to the subject; that is, it can float away from its head. Let us look at some examples illustrating the distribution of the absolute pronoun in isiXhosa.

5) Abazali **bona** ba- ya- sebenz- a (…abantwana bayafunda)
2.parents 2.them 2.SM- TNS- work- FV
'Parents, as for them, they work (…children study)' (..the children study)

6) **Bona** abazali ba- ya- sebenz- a
2.them 2.parents 2.SM- TNS- work- FV
'As for them, the parents, they work'

7) Abazali ba- ya- sebenz- a **bona**
2.parents 2.SM- TNS- work- FV 2.them
'The parents, as for them, they work'

8) **Bona** ba- ya- sebenz- a
2.them 2.SM- TNS- work- FV
'As for them, they work'

9) ***Bona** ya-sebenz-a
2.them -TNS-work-FV
Intended: "they work'

In sentence (5) the absolute pronoun occurs in a post-nominal position. In (6) it occurs before the head noun to further emphasize the noun. In (7) the absolute pronoun occurs post-verbally. Sentence (8) illustrates the use of the absolute pronoun where the lexical subject is omitted. Finally, sentence (9) shows that the absolute pronoun cannot be used independent of the SM.

In terms of features, the pronoun agrees with the noun in number (singular/plural) and by noun class (gender) in the same way the SM and OM do. However, the absolute pronoun differs from the SM and OM in a number of ways. Structurally, the position of the absolute pronoun in relation to the noun it modifies is the same, regardless of whether the subject is treated as a 'subject' or a 'topic'. As noted above, this may not be the case with SM. Secondly, whereas the SM interacts with inflection (such as tense, aspect and mood), the absolute pronoun does not. Finally, unlike the SM, the absolute pronoun is optional. What is relevant for our purposes here is that in the absence of a lexical subject, as in sentence (8), the absolute pronoun provides additional information about the subject. In a sense, it adds the same information (features) as the SM.

1.3 How work on acquisition of isiXhosa might contribute to the debate about SM and OM.

The preceding brief introduction to the competing treatments of SM and OM in the literature shows that the status of SM and OM as clitics is not a straightforward one. Outside the confines of Bantu studies, various researchers have demonstrated several structural connections between Bantu and Romance languages (Cardinaletti 2008; Hartford 2008; Labelle 2008; and Marten, Kempson and Bouzouita 2008, amongst others). Of particular interest is the parallelism drawn between the subject and object clitics, in terms of structural position, features, and verb movement. Although these studies assume different theoretical frameworks, the conclusion is that the freedom regarding word order possibilities in Bantu and Romance languages can be accounted for by using the same formal tools. We hope that the study of comprehension of SM and OM in Bantu can contribute further to the debates on the structural connections between languages that share certain features. The remainder of this chapter is as follows:

First, we will provide some details of how these subject and object markers are acquired in isiXhosa by L1 learners. We will call them "markers" because the status of these forms as clitics versus agreement affixes is as yet unresolved. However, we believe that the acquisition data might contribute insights to the theoretical discussions. Since the work has only begun, the account will be preliminary, but we plan to map out the path that research on this question will need to take, especially to integrate work on naturalistic speech with experimentation. Work on many languages has incorporated experimental studies with young native speakers to illuminate the nature of their grammars. Experimental work on the acquisition of African languages is very much in its infancy, but we hope to provide a road map of what can be achieved by taking a broader approach.

Secondly, we discuss the path of acquisition of noun classes (NC), subject markers, (SM) and object markers (OM) in children learning isiXhosa as a first language, though OM seems to be used too rarely in our samples of children's speech to speak with confidence about its course. Then we report on experimental studies that investigate whether SM in isiXhosa behaves like agreement affixes in other languages or whether they behave more like pronouns. We also report on an experimental study which tested whether children can retrieve number information about the subject and object from verbal morphology alone. We conclude the chapter by proposing future work that might contribute to debates about the nature of these markers cross-linguistically.

2.0 The acquisition of NC, SM and OM in isiXhosa-speaking children

In our investigation of children's acquisition of SM and OM in isiXhosa we analyzed samples of their spontaneous speech between ages 12 and 39 months (Gxilishe, de Villiers, and de Villiers 2007a, 2007b). The spontaneous speech data came from longitudinal samples of conversation from monolingual isiXhosa-speaking toddlers in a township outside of Cape Town collected every one to two months – for five children from 12 to 28 months, and for another 6 children from 24 to 39 months. The children were recorded in naturalistic settings interacting with a familiar adult research assistant whose first language was isiXhosa. Transcripts of the speech of all of the participants in the conversations were made and checked by two native-speakers of the language. The transcripts were combined into 6-month age bands to generate sufficient utterances for reliable analyses of stages of acquisition of different syntactic features. For the one-year-old cohort, there were 1155 child utterances in the total sample; for the two-year-olds a total of 1485.

For each utterance containing a lexical verb we coded the noun class of the target subject and/or object, whether the nouns were explicitly expressed or not. If a subject or object noun was present we noted whether the children marked its class with the correct NC prefix. This analysis did not include cases where the subject nouns required copulative prefixes, which replace the NC prefix in isiXhosa. Whether the subject noun was explicitly expressed or not, we coded whether the child correctly provided the obligatory subject marker for that noun class. Totaled across all the children there were 295 obligatory contexts for subject agreement spread across the different age bands, varying from a low of 36 obligatory contexts for age 18-24 months to a high of 87 for age 24-30 months. For each child at each age band we calculated the percentage of correct subject markers provided in obligatory contexts, the percentage of markers omitted, and the percentage of contexts in which the wrong NC marker was supplied.

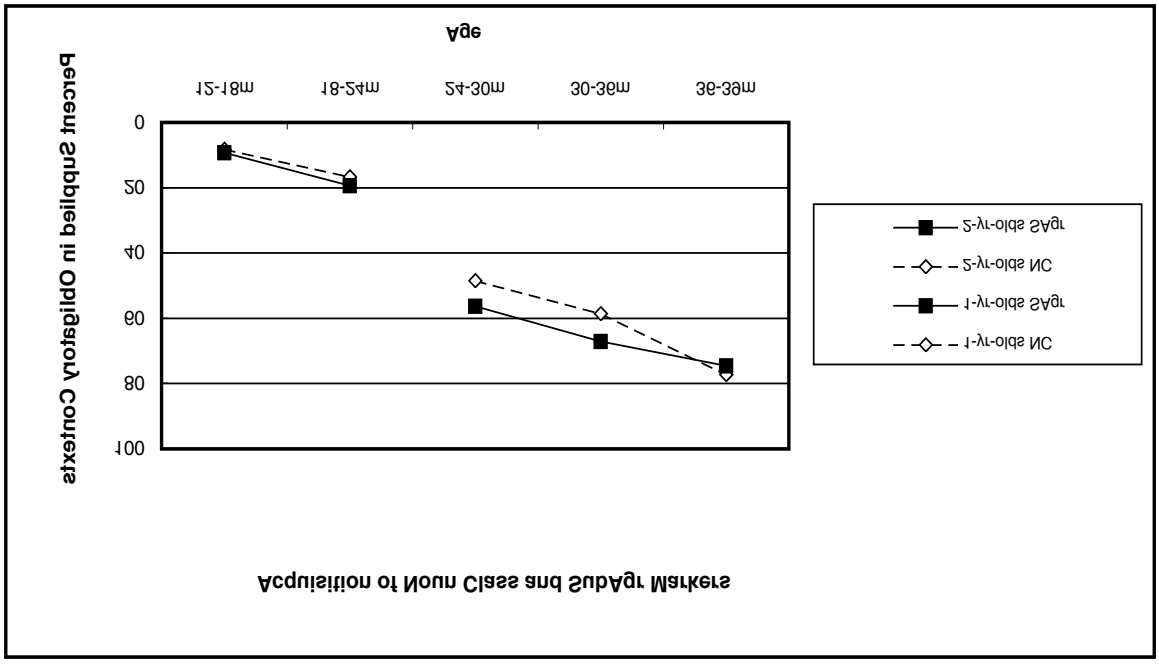


Figure 2. Acquisition of Noun Class and Subject Agreement Markers (from Gxilishe et al. 2007a)

Gxilishe et al. (2007a & b) report several important findings. First, across the age range of 12 to 39 months there was steady and parallel development in supplying the correct NC prefix on the nouns and the target SM on the verbs (see Figure 2), with each reaching a mean close to 80% correct use in obligatory contexts at age 36-39 months. Second, there was no difference at any age in the likelihood of the children supplying the correct SM on the verb whether the subject was explicitly expressed or not (see Figure 3). Across all the children at all ages, the correct SM was supplied 31.8% of the time when the subject noun was not expressed versus 27.8% of the time when the subject noun was present. Similarly, the SM on the verb was omitted 22.7% of the time when the subject noun was absent versus 18.2% of the time when the noun was expressed. This argues against any account in which the SM is "copied" from the subject noun onto the verb, at least on the surface.

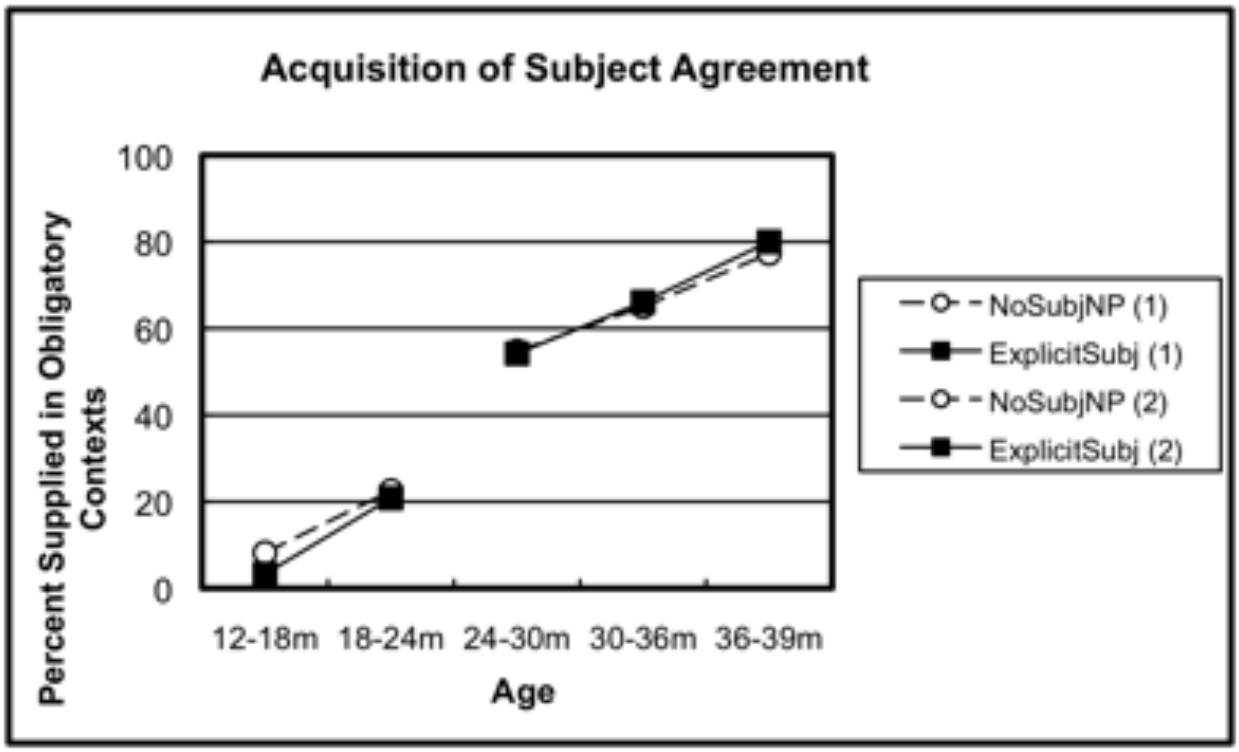


Figure 3. Acquisition of Subject Agreement Marking on the Verb with Explicit or Empty Subjects (from Gxilishe et al. 2007a)

In addition, the SMs did not appear to be acquired in any piecemeal lexical item-by-item process, neither verb by verb nor noun class by noun class. Correct marking of subject noun class on the verb increased in a probabilistic fashion across many verb roots and noun classes at the same time. For example, between 24 and 30 months, the six individual children correctly produced SMs for 4 to 7 noun classes on between 5 and 16 verb roots. And for two-thirds of the verb roots to which they correctly attached SMs, the children also omitted them on those same verbs. Similar gradual and probabilistic acquisition of subject marking was reported by Deen (2005) for Swahili.

Finally, errors in which the wrong SM was substituted (i.e. the marker for a different NC) on the verb were remarkably rare, as reported previously by Demuth (2003)

for Sesotho and Siswati: 139 out of 143 errors observed across all the children in obligatory contexts for subject agreement were errors of omission in which no marker was provided (97.2%). In contrast, errors of this type predominate in adult learners of isiXhosa as a second language.

The children's data are certainly compatible with the position of Du Plessis and Visser (1998) that the morpheme in isiXhosa is a subject agreement marker with either an explicit or null subject, in that there is no difference in the children's likelihood of supplying the SM on the verb as a function of whether the subject is overt or null. Deen (2005, 2006) draws a similar conclusion for the status of the agreement prefix in child data from the Nairobi dialect of Swahili. But the argument is not decisive: the form could still be a pronominal clitic.

There is some minimal data on OM in a paper on children's knowledge of the long and the short tense in isiXhosa, in Gxilishe et al. (2007b). They tested whether the same young speakers of isiXhosa knew the conditions under which the so-called long and short forms of the tense were obligatory in isiXhosa, some of which rely on having an OM. There were several appropriate uses of OM in the children's speech, that is, they used OM with the long but not the short form. However, the sample of such utterances was too small to constitute a study of OM in itself.

2.1 Previous experimental work

Experimental studies of isiXhosa-speaking children have just begun, and their focus has been to investigate whether SM in isiXhosa behaves like agreement suffixes in other languages (English, Spanish), or more like pronouns. It seems to be true that languages

move from having overt pronouns, to having pronominal clitics, to having agreement affixes (Givón, 1976). English has been argued to have undergone this process, and spoken French may be in transition to agreement affixes from pronominal clitics (the 3rd person singular forms *il*, *elle (he,she)*) (Legendre, Culberston, Barriere, Nazzi and Goyet, 2010). In question is the status of the SM marker in isiXhosa: does it behave more like agreement, or more like a pronoun, in children's comprehension?

First, there is important experimental work in developmental psycholinguistics to set the stage for the debate. A study by Johnson, de Villiers and Seymour (2005) on English has suggested that young English children do not seem to use the agreement marker on the verb to establish subject number. They designed a set of stimuli to disguise the number marking on the noun by having the verb begin with an /s/, so that the third person /s/ or its absence was the only cue to choosing the plural versus singular subject picture, e.g.

10) The cats sleep in the bed.

11) The cat sleeps in the bed.

Children aged three or four, and many five-year-olds, were at chance in the picture choice task on sensitivity to the 3rd person /s. By about age 5-6 years, children began to show sensitivity, but only to the singular verb form /s/ (11), not the plural /Ø/ (10). But English has a weak system of agreement, and the condition of the experimental setup is very atypical, as the marking is usually redundant with the noun marking. Pérez-Leroux (2006) repeated the experiment in a pro-drop language, Dominican Spanish, but her 3 and 4-year-old Spanish-speaking children also could not use the verb marking to choose the

right picture even when the subject noun was null (pro-drop), and the verb marking was an essential cue. Only at around age 5-6 did the Spanish children begin to show sensitivity, but then only to the plural marking. In both English and Spanish, the paradigm is asymmetrical: English has /Ø/ for the plural, and Spanish has /Ø/ for the singular. This was interpreted by Pérez-Leroux as evidence that children were in fact sensitive to *overt* marking (*–s* on third singular verbs in English, *–n* on third plural verbs in Spanish).

Brandt-Kobele and Höhle (2010) tested German-speaking children on verb agreement inflections using a picture choice task. Although German is not a pro-drop language, the personal pronouns for 3rd person singular female (*sie*) and 3rd person plural (*sie*) are homophones, making the sentence ambiguous unless the inflection marker of the verb is parsed. The verbs were either inflected for 3rd person singular (-t) or 3rd person plural (-n),

12) Sie fütter-t einen Hund.
Pronoun-3SG feed-3SG a dog
"She is feeding a dog."

13) Sie fütter-n einen Hund.
Pronoun-3PL feed-3PL a dog
"They are feeding a dog."

In their Experiment 2, German children at 36-48 months showed no evidence of distinguishing plural and singular pictures on the basis of the verb inflections on the verb in the sentence presented. But, the main point of their paper was to argue that the picture choice methodology may entail task demands that interfere with children's comprehension. Their experiments used an eye-tracker to track the children's eye-movements as the sentence was presented, on the assumption that the gaze response is absolutely minimal in its demands. The results of their Experiment 1 reveal that the children at 3-4 years did respond differentially to the verb

agreement, in that they moved from a strong bias to looking at the plural picture (argued to be informationally richer) towards the singular picture in the case when a singular agreement was presented. In Experiment 2 on pointing, they also tracked eye-movements and showed a similar trend but not nearly as strong, and interestingly, a dissociation between eye-gaze and pointing.

Their paper raises important questions about the methodology of picture choice, which might indeed introduce response selection demands that go beyond comprehension. As in other areas of infant development, there is considerable disagreement about what eye gaze reveals, and how "deep" the understanding goes. For example, some scholars have argued for a dual system of processing (e.g. Apperley, 2010), in which the first level (Level 1), captured in eye gaze, is a kind of automatic registration of significant stimuli, but perhaps insufficient for the child to make a decision or to engage or drive the motor response systems such as pointing. Level 2 is the level of integration of that information with the other response systems.

Legendre, Barriere, Goyet and Nazzi (2010) studied comprehension in children acquiring French, which unlike the other three languages discussed, can be argued to have pre-verbal agreement marking, under one analysis of weak subject pronouns (Legendre et al. 2010a). They argue that in the languages studied (English, Spanish, German) overt verbal agreement is marked by a single consonant in (word-final) coda position. They point out that numerous studies have found evidence that perception of consonants is affected by their position in a syllable and in a word, and cite Swingley (2009). Swingley characterizes some of the challenge as follows: "Word-final consonants are, in general, less clearly articulated; they are heard only after perception of the initial parts of the word has led children to consider an interpretation; and they enjoy less of the benefit of membership in dense phonological neighborhoods." For this reason, studies of languages with preverbal marking may contribute to the understanding of what morphosyntactic features children can detect.

In modern spoken French, inflected verbs in a frequent verb class do no istinguish person and number in their spoken form, except for first and second person plural. According to Legendre et al, the preverbal clitics are distinct for all persons and number, and have, therefore, taken up this function.. This fact was exploited to create stimuli in which the number was carried only by the liaison between the final /z/ on the pronoun "*ils*" (they) versus "*il*" (he). They chose verbs that the children knew already, but as a condition they had to be vowel-initial, with phonologically identical third person singular and third person plural forms, number agreement being only signaled by liaison between the pronoun and the verb. Furthermore, in a clever design, they motivated the looking by using nonsense words and objects ("le voube", "le taque") so when the stimulus was presented, the participants were motivated to identify the novel object using the cue from subject number e.g.

14) Il embrasse le voube

He kisses the voob

or

15) Ils embrassent le taque.

They kiss the tak

Proficient users of French make use of their knowledge of *il* (singular) versus *ils* (plural) to assign a singular or plural interpretation. The rather astonishing finding of this study is that French 30-month-olds (but not 24-month-olds) could look appropriately in these circumstances based on the cue from liaison, an average of 6.8% difference from baseline looking. This is more robust than the finding in Brandt-Kobele and Höhle (2010) and at a younger age. Some difference might be attributed to the dynamic nature of the events presented in the French task,

whereas in the other picture choice studies the pictures were static and sometimes movement had to be inferred (Legendre et al., 2010b). But the primary attribution made by the authors is that the success is because the critical stimulus is at the front of the verb, not the end.

Like Brandt-Kobele and Höhle (2010), Legendre et al. also look at pointing behavior in the same age group, using an experimenter to encourage pointing at the scenes but minimizing nonverbal cues. The authors asked whether the 6.8% increase in looking time observed between baseline and test in IPLP revealed a sufficient understanding of number agreement to to guide a pointing response, assuming that the pointing task also requires both decisional and motor planning. The 30-month-olds in French, unlike any other study to date, showed an ability to point at the right matching picture. The level of performance was not high, but above chance (average 61%)[6].

Setting aside the thorny question of what eye-gaze reveals about comprehension, we have a pattern of failure in 3- to 5-year-olds in explicit picture choice tasks in three languages that have final verb agreement, and one moderate success, in French. The complication that arises is the dispute over the nature of the initial element in French, the weak pronoun, traditionally considered a cliticized pronoun, but which Legendre et al. (2010a) argue has evolved into an agreement marker, an affix, in spoken French. If it were instead a pronoun, could that explain the superior performance? Some preliminary data testing pronouns in English speaking children aged 3-5 years revealed much better success in comprehending the

[6] A secondary analysis of the published data computed the sensitivity to the singular marker used in Johnson et al. (2005) and Gxilishe et al. (2009), to compare with the French results in Legendre et al. (2010b). Using the same index, namely choosing the singular picture when it was appropriate/total choice of the single picture, the data are not so far apart. but since the ages vary it is hard to compare the outcomes. For eyegaze in French at 30 months, sensitivity is .54, for pointing, it is .58. but we do not know if by these indices the results are different from chance =.50. In Johnson et al for Mainstream English at age 3, the sensitivity using the pointing task was .47 and at 4, .56 ; for Xhosa (Gxilishe et al. 2009) it was .56 for 4 year olds using pointing. None of these were significantly different from chance.

number carried by overt pronouns than on 3rd /s/ (Gxilishe, Smouse, Xhalisa and de Villiers 2009).

Here we discuss results of similar experimental work on isiXhosa, in the hope of illuminating the issues with yet another language. If isiXhosa is a pro-drop language, then SM should be a salient and important cue to the subject, as agreement is in Spanish. Unlike English and Spanish, the cues to plural and singular in isiXhosa are both overt, that is, zero morphology for one function is not found. However, morphology is complex because of the large set of noun classes. It can be argued that isiXhosa shares some of the properties of French but within a much richer agreement paradigm. Unlike the rare cue from liaison in French, the SM is almost invariably present in isiXhosa, but also at the beginning of the verb.

2.3 The comprehension of SM and Pronouns in isiXhosa

De Villiers and Gxilishe (2009) and Gxilishe et al. (2009) asked whether children speaking isiXhosa could use the SM marking on the verb to determine subject number. It is a much more difficult problem in the case of isiXhosa, given the variety of forms and their dependence on noun class. The argument was that if SM is more pronominal in nature, then perhaps isiXhosa children would be able to predict the subject number from the SM alone, unlike the cases of the other languages. Of course, it is also different in that SM in isiXhosa is preverbal (like spoken French, according to Legendre et al. 2010a), and the agreement in English and Spanish consists of postverbal suffixes.

Gxilishe et al. (2009) tested whether SM for children speaking isiXhosa patterned like subject agreement or like pronouns. They predicted that if it behaves like subject agreement, then children might show poor sensitivity to subject number carried only by SM. If it behaves like pronouns, then children might show good sensitivity to subject

number carried only by SM.

They also tested OM using a similar design, to see if number agreement could be carried by the agreement morphemes attached to the verb. Though Buell (2005) argues that they have properties that qualify them as object agreement morphemes, most theorists of Bantu consider these object morphemes to be pronominal clitics. In particular, when the morpheme co-occurs with a lexical object, the lexical object is displaced out of the clause, suggesting that a Principle A violation is being avoided. The question of how children retrieve number from object markers has not been tested previously.

The study was designed as an experiment to test whether children can retrieve number information about the subject and the object from the verb morphology alone. This was done as in Johnson et al. (2005) and Pérez-Leroux (2006) using 8 sets of pictures for the subject marking test and 8 sets for the object marking test. The pictures were selected based on frequency of use of verbs associated with them amongst children aged between 4 and 6 as well as on cultural appropriateness. The pictures represent the most common variety of singular-plural agreement pairs in isiXhosa. The participants involved in this study were 38 isiXhosa speaking children aged 4 to 6 years attending daycare or preschool in the townships near Cape Town. The researchers were native speakers of isiXhosa who tested the children individually in their schools.

After some warm up pictures to ensure that the children could attend and point to pictures, the participants were asked to listen to a sentence and then choose the picture that corresponded to the sentence that they heard. The children usually spontaneously repeated the sentences without any problems, and produced the morphemes in question in their repetition. They received general positive feedback regardless of their choices.

In the SM test, for example, one picture showed one rabbit sniffing at flowers, and a second picture showed two rabbits sniffing at flowers. After indicating the rabbits and the flowers to bring them into the discourse, the child was told to "point to the picture where":

16) U- nukisa amablomu
3.SM- sniff flowers
"It sniffs at the flowers".

The task was very similar for Object markers. For instance one picture showed a woman watering a single flower, and one showed a woman watering three flowers. After saying about the pair of pictures:

17) Jonga… Oo-mama, …ama-blomu
See 2a-women 6.flowers
"See… Women, flowers".

The child is asked to 'show the picture where':

18) Umama u- ya- wa – nkcenkceshel-a
1a.mother 1a.SM-TNS- 6.OM- waters – FV
"Mother waters them".

The alternative question would be:

19) Umama u- ya- li- nkcenkceshel-a
1a.mother 1a.SM-TNS- 5.OM- waters – FV
"Mother waters it".

The responses were analyzed in two ways, as in earlier work (Johnson et al. 2005) First, the number of correct choices was noted. Then the children's sensitivity was coded, namely, whether the child picked the singular picture *only* when the singular sentence was presented. Sensitivity is the number of singular pictures chosen when singulars were presented divided by the total number of times a singular is presented, and likewise for the plural. Chance performance is therefore a sensitivity of .5. This latter index takes account of bias say, towards the plural picture.

Given these three properties: isiXhosa has rich agreement, it is a pro-drop language

in which the SM carries essential information, and the marker is preverbal (Legendre et al. 2010b) one might expect performance to be better than the languages studied to date, or at least on a par with French. In fact, average sensitivity hovered around chance. Although there was a significant change in sensitivity to the singular forms between ages four and five, the level of performance at each age was no greater than .5 by a single sample t-test. This was the case for both singular and plural forms.

For the morphemes carrying object information, both singular and plural sensitivity was at chance for each age group, and the children did not seem to get better with age over this age range. Neither was it true that some children could do the task and other children could not. The data were distributed as one would expect by chance. The isiXhosa-speaking children's data do resemble the data from English-speaking, Spanish-speaking and German-speaking children in that the children showed no sensitivity to the morphemes on the verb that carry number agreement with the subject, at least in an overt decision task.

Gxilishe et al. (2009) speculate that these data could contribute to debates about the nature of the SM marker in isiXhosa, in that they resemble data from agreement markers (suffixes) in other languages, rather than pronouns. However, several nagging questions remained, especially in the light of the superior results in other languages from eyegaze tasks, and these are addressed in new work (Smouse, submitted).

First, it needed to be established how isiXhosa speaking children would behave with absolute pronouns, rather than SM alone. If isiXhosa speaking children proved insensitive to number agreement on strong pronouns, the result would cast doubt on the meaning of the result with the SM forms. Clearly, children should be tested on both the SM and absolute pronouns. When an absolute pronoun is used in isiXhosa, the information in

the SM is essentially duplicated.

The second issue is methodological: is the picture choice task at fault here? Consider the simple case, where you, as participant, are asked to point to a picture that shows

20) The duck swims on the pond.

The plural picture also has a duck swimming on a pond, but you, as an adult, recognize that the singular picture is a *better* choice. Similarly, if you are asked which picture shows:

21) The ducks swim on the pond.

You could take the singular picture as a duck representative of a plurality, though again, there would be a calculation that the experimenter probably wants you to choose the best example. So picture choice tasks inevitably entail something more than grammar, something along the line of Gricean implicatures. We are reluctant to ascribe all of the effect to this problem, just because English-speaking children succeed with pronouns, for example, and when asked to describe the pictures, always provide the right subject number. But it is important to try other, perhaps more sensitive, methodologies. Eye-tracking, though producing subtle results (Brandt-Kobele and Höhle 2010; and Legendre et al. 2010b), was not practically feasible, nor would it contribute to the larger goal of helping to provide language assessments for children who speak languages like isiXhosa.

2.4 Act-out comprehension as an alternative method

Smouse (submitted) adopted an act-out methodology instead of picture choice, with the same age group of 4-6 year old isiXhosa speakers (N= 37). In this new method, children were given a choice of plastic cut-out figures and props to manipulate. Children's comprehension of sentences with and without absolute pronouns was tested using a series

of Act-Out activities. As before, the tests were administered by two native speakers of isiXhosa. The participants were told that they would listen to an instruction/sentence, they would have to pick up the characters and act-out what they heard.

The SM test consisted of 8 laminated pictures representing the 4 noun classes. Each noun class had four sentences. The researcher put two pictures representing the singular and plural nouns of one noun class on the table and read out the action. For example, a picture of a cat might be presented along with two dogs, but critically, the dogs were glued together so could only act as a plurality. Table 3 presents a typical example with SM alone providing the clue to subject number. Notice that noun class was neutralized since the two nouns were from the same noun class.

Table 3. SM alone sentences

'Masidlale. Uyabona kukho umakazi, kukho oomalume, ibhedi, indlu, isofa, itafile. Ngamanye amaxesha siza kukhetha umakazi, ngamanye amaxesha siza kukhetha oomalume. Masibabeke apha. Ndiza kukuxelela ukuba wenze ntoni. Ndifuna undibonise.'
'*Let's play. We have aunt, uncles, a bed, a house, a sofa and a table. Sometimes we will choose aunt, and sometimes we will choose uncles. Let's put them here. I'll tell you what happens. I want you to show me'*
1) Jonga, ibhedi. **U**hlala ebhedini. *Look, a bed.* ***He/she*** *sits on the bed.*
2) Jonga, indlu. **Ba**ya emva kwendlu. *Look, a house.* ***They*** *go behind the house.*

In addition, a pronoun test was presented, also consisting of 8 laminated pictures representing 4 classes. These were the same pictures as the ones used for the SM test. The

procedures for the pronoun test were exactly the same as those of the SM test. The difference was that the pronoun sentences contained an absolute pronoun. Table 4 provides an example.

Table 4. Pronoun + SM sentences

'Masidlale. Uyabona kukho umakazi, kukho oomalume, ibhedi, indlu, isofa, itafile. Ngamanye amaxesha siza kukhetha umakazi, ngamanye amaxesha siza kukhetha oomalume. Masibabeke apha. Ndiza kukuxelela ukuba wenze ntoni. Ndifuna undibonise.' *'Let's play. We have aunt, uncles, a bed, a house, a sofa and a table. Sometimes we will choose aunt, and sometimes we will choose uncles. Let's put them here . I'll tell you what happens. I want you to show me'.* 3) Jonga, ibhedi. **Yena u**hlala ebhedini. *Look, a bed.* ***As for her, him, she/he*** *sits on the bed.* 4) Jonga, indlu. **Bona ba**ya emva kwendlu. *Look, a house. As for them,* ***they*** *go behind the house.*

First, there is a very strong effect of the kind of cue used, with absolute pronouns being understood much better than SM alone, regardless of whether the items were singular or plural. Although not perfect on pronouns, the isiXhosa children showed the same disparity between pronouns and agreement markers as the English children reported in Gxilishe et al. (2009). Yet, the isiXhosa-speaking children also showed better sensitivity to SM using this methodology than those in the previous work using picture-choice. On average, their sensitivity was .65, significantly above the .5 expected by chance. Even the four year olds were above chance in sensitivity to number in SM, although their accuracy was not very high.

As with the other languages, it is perplexing to see the massive gap between performance in spontaneous production, where it is near 100% at age four, and comprehension, which is considerably lower. Johnson et al. (2005) speculated that children

could not retrieve the information in uninterpretable features, such as those carried in English agreement suffixes, in comprehension. In production, the features are checked and then the information is deleted before Logical Form. In comprehension, the children cannot access the information that led to the agreement from the target of agreement alone. But if pronominal clitics reflect notional number like strong pronouns, the information might be accessible. However, other researchers dispute the production-comprehension disparity, arguing that the eye-tracker results reveal successful earlier comprehension, and/or that the estimates of production from spontaneous speech are exaggerated compared to the level of performance one might get from say, elicited production, especially with nonce verbs (Brandt-Kobele and Höhle 2010; Legendre at al. 2010b). Clearly more work is needed here on elicited production.

3.0 Future work

We are left then with an unresolved puzzle: clearly SM is not as strong a carrier of notional number as pronouns are, but children as young as four do show some sensitivity to the number information carried by SM. The improvement in performance of the participants compared to earlier work lies in the adoption of the act-out methodology, suggesting that the picture choice task might present challenges beyond the grammar to young children.

It is noticeable that the performance is about the same for French and isiXhosa, that is, considerably weaker than production but at least better than chance. Both languages have preverbal clitic forms that might be in transition between weak pronouns and agreement affixes, and the children seem to be better at a younger age than their

counterparts in Spanish and English who have suffixal agreement. Perhaps some more regularities will emerge if future studies can employ closely matched methodologies, and even more language varieties are included.

First, it is generally agreed that children learning languages with clitic pronouns do not show a delay in obedience to Principle B, now often called the "pronoun interpretation problem", or PIP. That is, in languages with strong pronouns, children go through a prolonged period (up to age 6 or 7) when they misinterpret a sentence with a pronoun in the following kind of scenario:

22). Here are Bert and Elmo. Elmo hit him.

That is, they allow the pronoun *him* to co-refer with Elmo, apparently violating Principle B of the binding rules (Chien and Wexler 1990; see Hamann 2010, for a review). Such errors do not occur when clitic pronouns are used in languages, such as Italian (McKee 1992), French (Hamann, Kowalski, and Philip 1997; Jacubowicz 1989), and Spanish (Baauw, Escobar, and Philip 1997). In the course of working out why there is this difference, several other properties of clitic object pronouns have been pointed to, such as the fact that they are high in the functional structure of the clause in Romance languages and also referentially deficient, in the sense that they cannot be used deictically, never take focal stress, and depend on discourse. Contrast these with English pronouns, which can in certain unusual cases be coreferential "accidentally":

23). Everyone admires Bob. Jane admires him, Fred admires him, and even Bob admires him!

In Romance, clitics and strong pronouns occupy different positions and have different properties. Evidence shows that children never misplace clitics in production, so if they never mistake clitics for strong pronouns, they know that clitics cannot take accidental coreference as in (23), and therefore do not show the PIP effect in (22) (Hamann 2010). Doing parallel work in isiXhosa on binding in children might shed more light on the status of object clitics.

Second, some exciting work is underway on what other features SM might carry in isiXhosa. Number information is obscured to some extent by the variation in affixes across noun classes. But perhaps SM carries noun class information more readily. Smouse and her colleagues are currently testing whether young children can retrieve the noun class information from an SM marker alone, i.e. with no overt subject. If noun class information is more robustly represented than number, we will gain further insights into the nature of these markers and their status. For example, number information might be subsumed under noun class information in isiXhosa.

In addition, we intend to undertake a comparison of the child L1 learners with those acquiring isiXhosa as an L2. A recent claim has been made that uninterpretable features of an L2 that were not selected during a critical period in L1 learning might present a special challenge to second language learners (Hawkins and Hattori 2006; Tsimpli 2003). An interesting case to study might be English-speakers learning isiXhosa as an L2, looking at their relative sensitivity to number features (which might be acquired already, though minimally, for their L1) and gender or noun class, which should be much harder if not impossible to recover from the target of agreement, namely, the SM on the verb. How sensitive would L2 learners of isiXhosa be on these tasks?

4.0 Conclusion

Work on acquisition of Bantu languages such as isiXhosa might contribute to linguistic debates about several phenomena in both acquisition and linguistic theories. So far, the evidence from spontaneous speech suggests that children command the subject marker at an early age in production, with very rare substitutions. The form seems to be productive, and not tied to particular lexical items. In addition, supplying the SM is just as good when the subject is dropped (pro-drop) as when it is overt, making surface copying an unlikely mechanism.

In comprehension, two studies have shown weak performance in retrieving number information from the subject and object markers, in contrast to successful spontaneous production. Furthermore, SM is clearly different from absolute pronouns in this regard. The data on SM resemble data from French, in which a preverbal pronominal clitic also serves an agreement function. The four year old isiXhosa-speaking children are beginning to show some sensitivity to the number carried by SM on more refined tests.

Further research is planned to explore these issues, to compare Romance languages and isiXhosa using similar methods, and to compare the success of L1 and L2 learners.

References

Apperley, I (2010). *Mind Readers: The Cognitive Basis of "Theory of Mind"*. Hove: Psychology Press.

Baauw, S., Escobar, L. and Philip, W. (1997). A delay of Principle B-effect in Spanish speaking children: The role of lexical feature acquisition. In A. Sorace, C. Heycock and R. Shillock (Eds.), *Proceedings of GALA 1997: Language Acquisition: Knowledge Representation and Processing.* University of Edinburgh, 16-21.

Baker, M. C. (1988). *Incorporation: A Theory of Grammatical Function Changing*. Chicago: The University of Chicago Press.

Brandt-Kobele, O.-C. and Höhle, B. (2010). What asymmetries within comprehension reveal about asymmetries between comprehension and production: The case of verb inflection in language acquisition. *Lingua*, 120 (8), 1910-1925.

Bresnan, J and Mchombo, S. (1986). Grammatical and anaphoric agreement. In Anne Farley, Peter. T. Farley and Karl Mc Cullough (Eds.), *Papers from the Parasession on Pragmatics and Grammatical Theory. CLS* 22. Vol. 2. Chicago Linguistic Society. University of Chicago. 278-297.

Bresnan, J. and Mchombo, S. (1987). On topic, pronoun and agreement in Chichewa. *Language*, 63, 741-782.

Buell, L. (2005). *Issues in Zulu verbal morphosyntax*. Doctoral dissertation, University of California, Los Angeles.

Cardinaletti, A. (2008). On different types of clitic structures. In C. De Cat and K. Demuth (Eds.), *The Bantu-Romance Connection.* Amsterdam: Benjamins. 41-82.

Carstens, Vicki. (2008). DP in Bantu and Romance. In C. De Cat and K. Demuth (Eds.), *The Bantu-Romance Connection*. Amsterdam: Benjamins. 131-162.

Chien, Y.C. and Wexler, K. (1990). Children's knowledge of locality conditions in binding as evidence for the modularity of syntax and pragmatics. *Language Acquisition*, 1, 225-295.

Chomsky, N. (1995). *The Minimalist Program*. Cambridge, MA: MIT Press.

De Cat, C and Demuth, K (Eds.). (2008). *The Bantu-Romance Connection.* Amsterdam: Benjamins.

Deen, K U. (2005). *The Acquisition of Swahili*. Amsterdam: Benjamins.

Deen, K U. (2006a). The clitic pronoun in Swahili. Poster presented at the workshop: The Bantu-Romance Connection, Leeds University.

Deen, K. U. (2006b). Subject agreement in Nairobi Swahili. In J. Mugane, J.P. Hutchison, and D.A. Worman (Eds.), *Selected Proceedings of the 35th Annual Conference on African Linguistics: African Languages and Linguistics in Broad Perspectives*. Somerville, MA: Cascadilla Press. 225-233.

Demuth, K. (2003). The acquisition of Bantu languages. In D. Nurse and G. Phillipson (Eds.), *The Bantu Languages*. Surrey: Curzon Press. 209-222.

de Villiers, J G. and Gxilishe, S. (2009). The acquisition of number agreement in English and Xhosa. In J.M. Brucart, A. Gavarró and J. Sola (Eds.), *Merging Features: Computation, Interpretation and Acquisition.* London: Oxford University Press. 91-116.

Doke, C. (1954). *The Southern Bantu Languages*. London: Oxford University Press.

Du Plessis, J. A. and Visser, M. (1992). *Xhosa Syntax*. Pretoria: Via Afrika.

Du Plessis, J. A. and Visser, M. (1998). Xhosa syntax. *Stellenbosch Communications in African Languages.* #7.

Givón, T. (1976). Topic, pronoun and grammatical agreement. In C.N. Li (Ed.), *Subject and Topic.* New York: Academic Press. 149-188.

Gxilishe, S., de Villiers, P.A. and de Villiers, J.G. (2007a). The acquisition of subject agreement in Xhosa. In A. Belikova, L. Meroni, and M. Umeda (Eds.), *Proceedings of the 2nd Conference on Generative Approaches to Language Acquisition North America (GALANA).* Somerville, MA: Cascadilla Press. 114-123.

Gxilishe, S., de Villiers, J.G. and de Villiers, P.A. (2007b). Acquisition of tense in Xhosa: the long and short of it. In H. Caunt-Nulton, S. Kulatilake, and I. Woo (Eds.), *BUCLD 31: Proceedings of the 31st annual Boston University Conference on Language Development.* Somerville, MA: Cascadilla Press. 274-285.

Gxilishe, S., Smouse, M., Xhalisa, T., and de Villiers, J.G. (2009). Children's insensitivity to information from the target of agreement: the case of Xhosa. *Proceedings of the 3rd GALANA Conference*. Somerville, MA: Cascadilla Press. 46-53.

Hamann, C. (in press). The acquisition of binding. In T. Roeper and J.G. de Villiers (Eds.), *Handbook of Generative Approaches to Acquisition*. Dordrecht: Springer.

Hamann, C., Kowalski, O. and Philip, W. (1997). The French 'delay of Principle B' effect. In E. Hughes, M. Hughes, and A. Greenhill (Eds), *BUCLD 21: Proceedings of the 21st Boston University Conference on Language Development.* Somerville, MA: Cascadilla Press. 205-219.

Hartford, C. (2008). The Bantu-Romance in verb movement and verbal inflection morphology. In C. De Cat and K. Demuth (Eds.). *The Bantu-Romance Connection.* Amsterdam: Benjamins. 111-128.

Hawkins, R.and Hattori, H. (2006). Interpretation of English multiple wh-questions by Japanese speakers: a missing uninterpretable features account. *Second Language Research,* 22 (3), 269-301.

Jakubowicz, C. (1989). Linguistic theory and language acquisition facts: Reformulation, maturation or invariance of binding principles. Paper presented at conference on *Knowledge and Language,* Groningen, May.

Johnson, V.E., de Villiers, J.G. and Seymour, H.N. (2005). Agreement without understanding? The case of third person singular /s/. *First Language,* 25, 317–30.

Keach, C. (1995). Subject and Object markers as agreement and pronoun incorporation in Swahili. In A. Akinlabi (Ed.), *Theoretical Approaches to African Linguistics*. Trenton, NJ: African World Press. 109-116.

Koopman, H. and Sportiche, D. (1991). The position of subjects. *Lingua,* 85, 211-258.

Labelle, M. (2008). Pronominal object markers in Bantu and Romance. In C. De Cat and K. Demuth (Eds.). *The Bantu-Romance Connection.* Amsterdam: Benjamins. 83-109.

Legendre, G., Culbertson, J., Barriere, I., Nazzi, T., and Goyet, L. (2010a). Experimental and empirical evidence for the status and acquisition of subject clitics and agreement marking in adult and child Spoken French. In V. Torrens, L. Escobar, A. Gavarró, and J.G. Mangado (Eds.), *Movement and Clitics*. Newcastle: Cambridge Scholars Publishing. 333-360.

Legendre, G., Barriere, I., Goyet, L., and Nazzi, T. (2010b). Comprehension of infrequent subject-verb agreement forms: Evidence from French-learning children. *Child Development*, 81 (6), 1859-1875.

Marten, L., Kempson R. and Bouzouita M. (2008). Concepts of structural underspecification in Bantu and Romance, in C. De Cat and K. Demuth (Eds.). *The Bantu-Romance Connection.* Amsterdam, Netherlands: Benjamins. 3-39.

McKee, C. (1992). A comparison of pronouns and anaphors in Italian and English acquisition. *Language Acquisition,* 2, 21-54.

Meinhof, C. (1948). *Grundzüge einer vergleichenden Grammatik der Bantusprachen*. Hamburg: Dietrich Reimer. Second edition. First published 1906.

Pérez-Leroux, A.T. (2006). Recovering plurality. Paper presented at workshop: The acquisition of the syntax and semantics of number marking, GLOW, Barcelona, April.

Rizzi, L. (1997). The fine structure of the left periphery. In L. Haegeman (Ed.), *Elements of Grammar: Handbook of Generative Syntax*. Dordrecht: Kluwer. 281-337.

Smouse, M. (submitted). Uninterpretable features in comprehension: Subject-verb agreement in isiXhosa.

Swingley, D. (2009) Onsets and codas in one-year-olds' word recognition. *Journal of Memory and Language,* 60*,* 252-269.

Tsimpli, I. (2003). Clitics and determiners in L2 Greek. In J.M. Liceras, H. Zobl and H. Goodluck (Eds.), *Proceeding of the 6th Generative Approaches to Second Language Acquisition Conference*. Somerville, MA: Cascadilla Press. 331-339.

Visser, M. (2008). Definiteness and specificity in the isiXhosa determiner phrase. *South African*

Journal of African Languages, 28 (1), 1-25.

Woolford, E. (2000). Agreement in disguise. In V. Carstens and F. Parkinson (Eds.), *Trends in African Linguistics*. Trenton, NJ: Africa World Press. 103-117.

Zeller, J. (2008). The Subject marker in Bantu as an antifocus marker*. *Stellenbosch Papers in Linguistics*, Vol. 38. 221-254.

Zwart, J. (1997). *Rethinking Subject Agreement in Swahili***.** NWO/University of Groningen. http://www.let.rug.nl/zwart/docs/nels97.pdf (accessed 21 October, 2011).