

Object Agreement and Specificity in Swahili

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1. Introduction

The acquisition of abstract categories of language (such as tense, aspect and agreement among others) has commanded much of the attention of the field of language acquisition for many decades now. How early do children show knowledge of these abstract properties of language, and how do they acquire them? One such abstract property of language is nominal specificity. In some languages a noun is overtly marked as referring to a specific entity or a non-specific entity, while in other languages there are other syntactic effects of specificity. For example in Dutch, nouns (which are not marked overtly for specificity) move leftward when the noun is specific (this movement is known as scrambling) but not when the noun is non-specific. In Russian, a specific noun occurs preverbally irrespective of whether it is the subject or object, while a non-specific noun occurs postverbally. Thus, while the specificity of a noun may not be overtly marked on the noun itself, there are various effects of specificity that can be seen in the syntax. The question that has been posed in the literature is how do children acquire this property of language, and how early do they show this knowledge.

Various authors have made contrasting claims regarding specificity in child language. For example, Schaeffer (2000), based on evidence from child Dutch in which children fail to scramble in obligatory context, claims that the nominal feature *specificity* is optionally underspecified in child grammar (on par with the underspecification of *temporal specificity*, as proposed by Hyams, 1996). Avrutin & Brun (2001), on the other hand, show that Russian children place arguments either preverbally or postverbally appropriately according to their specificity, thus showing intact knowledge of specificity at very early ages. They argue that any errors that arise do so because of unadult-like pragmatic knowledge of what constitutes a specific referent.

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The question of whether young children have knowledge of specificity is thus disputed. In this paper I investigate specificity in child Swahili, a Bantu language spoken in Eastern Africa. I show that children reliably use object agreement (which is dependent on specificity in ways that will be made clear below) in contexts in which object agreement is obligatory. These facts suggest two things: (i) Swahili children acquire object agreement fairly early, and (ii) Swahili children (like their Russian counterparts) show intact knowledge of specificity.

The remainder of this paper is organized as follows. In section 2 I review the studies on the acquisition of specificity: Schaeffer's (2000) investigation of Dutch scrambling and determiners and Avrutin & Brun's (2001) study on the acquisition of argument placement in Russian. Section 3 introduces the relevant portions of adult Swahili morphosyntax, showing the agreement patterns and the structure of the verbal complex. Section 4 presents the methodology and data employed in the study and section 5 presents the results. I discuss these results and conclude in section 6.

2. Specificity in child language

2.1 Schaeffer (2000)

Schaeffer (2000) investigates scrambling and determiners in two Dutch children aged 1;10-5;4. In adult Dutch, nouns that are specific may scramble, while non-specific nouns may not scramble. Because pronouns are inherently specific, they obligatorily scramble. Table 1 below is adapted from Schaeffer (2000) showing the rate of scrambled pronouns in the speech of Niek and Laura. The results are broken into two developmental stages.

Table 1. Scrambled and Unscrambled Pronouns in child Dutch

	Niek		Laura	
	Scrambled	Unscrambled	Scrambled	Unscrambled
Stage I	71%	29%	30%	70%
Stage II	78%	22%	88%	12%

Niek Stage I: 2;7 - 3;5, Stage II: 3;6 - 3;11;

Laura Stage I: 1;10 - 3;4, Stage II: 3;5 - 5;4

We see that Niek fails to scramble pronouns between 22% and 29% of the time, and in stage I of Laura's data, pronouns fail to scramble 70% of the time. In stage II, while Laura does not show full mastery of pronoun scrambling, she has developed considerably. This shows that in early Dutch (unlike adult Dutch) pronoun scrambling is not obligatory. Schaeffer takes this as evidence that *specificity* in child Dutch may be optionally underspecified. As additional evidence, Schaeffer points to the omission of determiners in obligatory

contexts. She finds that at early stages determiners are omitted at extremely high rates, as shown in table 2 below.

Table 2. Nouns with and without determiners in child Dutch

	Niek		Laura	
	+Determiner	-Determiner	+Determiner	-Determiner
Stage I	6%	94%	31%	69%
Stage II	44%	56%	86%	14%

Niek Stage I: 2;7 - 3;5, Stage II: 3;6 - 3;11;

Laura Stage I: 1;10 - 3;4, Stage II: 3;5 - 5;4

As in the case of scrambling, Laura shows development in stage II. Schaeffer argues that determiner omission occurs because of the underspecification of the feature *specificity*. Thus Schaeffer concludes that in early stages of Dutch, children's nominal expressions can be optionally underspecified with respect to the feature *specificity*.

2.2 Avrutin & Brun (2001)

If it is a characteristic of child language (and not only child Dutch) that *specificity* may be underspecified, then effects of this underspecification should be apparent in other languages in which specificity plays a role. Avrutin & Brun (2001) tested this hypothesis in Russian, where specificity plays a role in argument placement. In adult Russian, all preverbal arguments (irrespective of whether they are the subject or the object) are interpreted as specific and all postverbal arguments are interpreted as non-specific. The examples in (1) are taken from Avrutin & Brun (2001, p.71):

- (1) a. Mal'čik činit igrušku
 (the) boy-NOM is-fixing (a/some) toy-ACC
 'The boy is fixing a toy.'
- b. Igrušku činit mal'čik
 (the) toy-ACC is-fixing (a/some) boy-NOM
 'A boy is fixing the toy.'

The examples in (1) show that specificity correlates with argument placement: if specific, then the argument occurs preverbally, if non-specific the argument occurs postverbally. If it is true that children allow the feature *specificity* to be optionally underspecified, Russian children should misplace arguments. Avrutin & Brun tested this hypothesis using naturalistic data from four Russian speaking children aged 1;7 to 2;3. The surrounding context (including parental speech) and the presence of certain markers denoting

specificity and non-specificity were used to determine whether the intended interpretation was specific or non-specific. The results of their analysis are adapted and presented in table 3 below.

Table 3. Distribution and interpretation of preverbal arguments

Adult Interpretation	Preverbal Subject	Preverbal Object
Specific	341/379 (90%)	245/274 (89.4%)
Non-Specific	49/152 (32.2%)	18/186 (9.7%)

Table 3 shows that of all the specific subjects, 90% were preverbal, and of all the specific objects, 89.4% were preverbal. Of all the non-specific subjects, 32.2% occurred (incorrectly) preverbally, and of all the non-specific objects, 9.7% occurred (incorrectly) preverbally. Putting aside the elevated rate of preverbal non-specific subjects (32.2%) for the time being, the other three results show that Russian children have intact knowledge of specificity since the error rate in all cases is approximately 10% or less. Avrutin & Brun attribute the elevated rate of non-specific preverbal subjects to a topicality effect. They argue that children are more prone to mistakenly assume that subjects are specific because subjects are often weak topics. Thus this amounts not to a syntactic error, but a pragmatic one in that children fail to recognize that the subject is not a known entity.

The conclusion that Avrutin & Brun draw from this data is that Russian children, unlike their Dutch counterparts, show knowledge of the feature *specificity* from as early as 1;7. How are these two conflicting results to be resolved? The natural solution is to claim that Dutch children fail to show knowledge of specificity because of particular properties of the morphosyntax of Dutch. *A priori*, an equally plausible alternative is that particular properties of Russian lead to the early acquisition of specificity. Without clear reasons to adopt one solution over the other, this still leaves us without a definitive answer to whether children have knowledge of specificity from early on. The current study aims to resolve this debate by presenting evidence of the acquisition of specificity and object agreement in early Swahili. Before presenting the results, I will first present some facts about Swahili morphosyntax that illuminate why Swahili is a good language to investigate the acquisition of specificity.

3. Swahili verbal complex

Swahili is a Subject-Verb-Object language (see 2 below) with the verb embedded within a verbal complex that minimally contains Subject Agreement, Tense, the verb root and a final mood vowel. SA marks number and person (see table 4), but case is not marked morphologically. Table 5 provides a non-exhaustive list of some tense/aspect markers.

- (2) Subject Verbal Complex Object
- Juma a - na - m - pend - a Mariam
- Juma SA_{3s}-PRES-OA_{3s}-like - IND Mariam
- ‘Juma likes Mariam.’

Table 4. SA paradigm

SA prefix	
ni-	1st person, sing.
u-	2nd person sing.
a-	3rd person sing.
tu-	1st person pl.
mu-	2nd person pl.
wa-	3rd person pl.

Table 5. Some T/A prefixes

Tense/Aspect Morpheme	Meaning
Li	past
Na	Pres. on-going/ habitual
Ta	future
Ka	Narrative
Me	Pres. perfect
Sha	Pres. perfect completive
Ku	infinitival

Table 6. OA paradigm

Object Agreement	
ni	1st person, sing.
ku	2nd person sing.
m	3rd person sing.
tu	1st person pl.
mu	2nd person pl.
wa	3rd person pl.

OA, like SA, marks person and number (shown in table 6 above). However, OA is not obligatory in every sentence, but is subject to the Specificity Condition:

The Specificity Condition: If the object is specific, OA is obligatory (see 3a), and if the object is non-specific, OA is obligatorily absent (see 3b; Ashton, 1947; Khamisi, 1988).

- (3) a. Juma a - li - mw -on - a m - tu Specific
- Juma SA_{3s}-past-OA_{3s}-see-IND 1-person
- ‘Juma saw the person / *a person.’

- b. Juma a - li - on - a m - tu Non-specific
 Juma SA_{3s}-past-see-IND 1-person
 ‘Juma saw a person / *the person.’

Thus OA is dependent on nominal specificity, making Swahili a good language to investigate the question of whether *specificity* in child language is optionally underspecified. If Swahili children omit OA when the object is specific, this may be evidence that the feature *specificity* is underspecified.¹ However, if Swahili children reliably provide OA in obligatory contexts, then we can conclude that Swahili children have knowledge of specificity.

4. Child Data

The data come from biweekly recordings of naturalistic speech in the homes of four children in Nairobi, Kenya. The data were audio recorded and transcribed using CHAT format. The ages, number of recordings, MLUs and Verb ratios (the ratio of verbs to total utterances, Valian, 1991) are given in table 7 below.

Table 7. Subject information

Child	Haw	Mus	Fau	Has
Age range	2;2 – 2;6	2;0 – 2;11	1;8 – 2;2	2;10 – 3;1
#of recordings	7	23	10	5
MLU	1.54–2.46	1.52–3.57	2.97–3.93	3.15–4.23
V Ratio	.07-.14	.05-.17	.20-.36	.30-.40

Each of the children was assigned to a particular stage or stages according to 3 measures of grammatical development: MLU, verbs per utterance (Valian 1991) and proportion of filler syllables / protosyntactic devices (Peters, 2001; Bottari, Cipriani, and Chilosi 1993/1994). I then pooled the data from each stage. According to these measures, the children represent 4 developmental stages with one of the children (Mus) passing through more than one stage during the time of the study (see Deen 2001, 2002a for further details).

The transcripts were in CHAT format and were all morphologically coded. All analyses were conducted using CLAN programs (MacWhinney, 2000), the results of which were verified by hand. The results will be presented next in section 5. First I discuss the relative emergence of SA and OA in section 5.1, followed by a discussion of the acquisition of specificity and OA.

¹ Of course, the omission of OA may also be due to some other factor unrelated to specificity. As we will see shortly, Swahili children do not omit OA in obligatory context, rendering this a mute point.

5. Results

5.1 Acquisition of Subject Agreement

In this section, as background, I first present data on the acquisition of Subject Agreement (SA) in Swahili. SA is omitted fairly frequently at early stages. We see from table 8 that in stage 1, over 60% of the children's indicative utterances are missing SA.²

Table 8. Occurrence and Omission of SA across the four stages

	Stage 1	Stage 2	Stage 3	Stage 4
[+SA]	81 (38.9%)	83 (28.4%)	256 (56.1%)	251 (67.8%)
[-SA]	127 (61.1%)	209 (71.6%)	200 (43.9%)	119 (32.2%)
	208	292	456	370

In fact, even at stage 4, more than one third of the utterances in the corpora occur without SA. On the face of it, this would appear to suggest that SA is acquired extremely late by Swahili speaking children. However, in Deen (2002a,b) I show that adult Swahili speakers of this non-standard dialect of Swahili omit SA in certain discourse contexts. I argue that SA omission in child Swahili is in fact an overgeneralization of this permissible construction. That is, children are sensitive to the syntactic restrictions on SA omission, but overgeneralize the discourse conditions in which such omission may occur. The details of this proposal are not directly relevant here except in showing that OA is acquired at least as early as SA (if not earlier).

5.2 Acquisition of OA

Moving on to OA in child Swahili, as a first analysis, I present in table 9 the overall number of tokens of OA in the Swahili corpora, by stage. The proportion of verbal utterances marked with OA in this data ranges from 5% (stage 2) to 16% (stage 3). These figures are presented simply to provide an overview of how often OA occurs in the speech of children. Oppositions in person in OA occur in stage 1 (1st versus 3rd person), and there are no errors whatsoever in person agreement even in stage 1.

Table 9. OA across the four stages

	Stage 1	Stage 2	Stage 3	Stage 4
Tokens of OA	38	27	102	66
Total Verbs	639	535	638	519

² Because SA is not always obligatory in subjunctives or negatives, these counts only include indicative clauses.

preverbally. There were a total of 98 preverbal lexical nouns, 1 preverbal object pronoun, 175 preverbal names, and 48 preverbal demonstratives. Each utterance was then inspected and all topics were identified. All repetitions, imitations, etc. were discarded. The majority of the preverbal DPs were subjects or vocatives, with the remainder being topicalized objects. The results are presented below.

Table 11. OA with Topicalized nouns

	Lexical Noun	Obj. Pronoun	Name	Demonstrative	Total
Specific	3	1	2	4	10
Non-specific	0	0	0	2	2

Of the 12 unambiguous topicalized objects, 10 occur with OA. There are 2 cases of objects that have been topicalized and that occur without OA. These exceptions are listed below:

- (6) a. na...hiyo ni – tow – e FAU03, line 619
 adult: na hiyo, ni – i – tow – e
 and that SA_{1s}–OA_{inanim}–remove–SUBJ
 intended: ‘And (perhaps) that, I should remove (it).’
- b. hile, si hile nilisoma FAU05, line 990
 adult: si hile, ni – li – i – som – a
 see that SA_{1s}–past– OA_{inanim}–read–IND
 intended: ‘See, that, I read (it).’

Note that in both examples in (6) the missing OA marker is [i] and the immediately preceding vowel is also [i] (see the tiers marked ‘adult’ in the above examples). Thus it is possible that these are not cases of OA omission, but rather vowel coalescence or reduction.⁴ If we put these cases aside as unclear, 10 topicalized objects are left, all of which are marked with OA.

While the tokens in both tables 10 and 11 are relatively few, the results are clear: OA is supplied correctly in obligatory context in child Swahili. However, this is not enough to tell us that OA is correctly acquired. The children may be overusing OA without knowledge of the conditions under which OA may occur. That is, children may simply be using OA in *all* contexts, making it appear as if they supply OA in obligatory context appropriately. There are two reasons to reject such a possibility. First, the data in table 9 above show that the overall rate of OA in the various stages is no higher than 16%. If the near-100% rate of OA in obligatory context were because of a general over-

⁴ In adult Swahili these are pronounced with a long vowel. The utterances in (6) were pronounced with short vowels, thus I categorize them as missing OA.

use of OA, then we would expect the overall rate of OA to be close to what is observed when the object is a proper name or a topic. The second reason is that, as I show in section 5.4 below, not only do children provide OA in obligatory contexts, they never provide OA when OA is prohibited.

5.4 OA in Transitive and Intransitive Clauses

OA obviously can never occur in intransitive clauses because of the logical absence of an object. If children are randomly overusing OA, then we should see some overuse in intransitive contexts. Table 12 below shows the rate of OA in transitive and intransitive contexts. The data show that children very rarely overuse OA in intransitive contexts (0.4% of the time).

Table 12. OA in Transitive and Intransitive clauses

	+OA	-OA	Total
Transitive	229(14%)	1377 (86%)	1605
Intransitive	4 (0.4%)	953(99.6%)	957

The data presented in tables 10 and 11 show that children provide OA in obligatory contexts (with names and with topicalized objects), and the data in table 12 show that children never provide OA in contexts in which OA is not permissible. These two facts hold in all stages of the data, starting in the data of the least mature child at approximately age 1;10. I therefore conclude that OA and the Specificity Condition is acquired by stage 1.

6. Discussion and Conclusion

In this paper I have shown two things. First, children mark specificity with OA over 90% of the time in contexts in which OA is obligatory. Second, OA is acquired extremely early (stage 1 in this data, approximately age 1;10). These results are in line with the results obtained by Avrutin & Brun (2001) in which Russian children are shown to place arguments correctly according to their specificity.

Russian and Swahili are obviously typologically very different languages. The manner in which specificity is expressed in these two languages is significantly different - in Russian, specificity is expressed through the placement of arguments in relation to the verb; in Swahili specificity is expressed through the occurrence or non-occurrence of OA on the verb. The fact that children acquiring both these languages show knowledge of the respective grammatical effects of specificity from before the age of 2 years leads us to conclude that cross-linguistically children do have knowledge of nominal specificity. The reasons for why Dutch children fail to scramble and fail to provide determiners in obligatory context is left open at this point, but

what seems clear in light of the Swahili and Russian evidence is that this is something specific to Dutch (and perhaps other closely related languages such as German) and not to an underspecification or delay of a particular feature.

References

- Ashton, Ethel O. (1947) *Swahili Grammar*. London, Longmans, Green and Co.
- Avrutin, Sergey., & Dina Brun (2001) The Expression of Specificity in a Language without Determiners: Evidence from Child Russian. In A. H-J. Do, L. Domínguez, & A. Johansen (Eds) the *BUCLD 25 Proceedings*, Somerville, MA: Cascadilla Press. pp. 70-81.
- Deen, Kamil Ud (2001) 'The Acquisition of Swahili verbal morphology'. In Costa, J. & M.J. Freitas (Eds), *The Proceedings the Generative Approaches to Language Acquisition 2001 conference*. Palmela, Portugal.
- Deen, Kamil Ud (2002a) 'The Acquisition of Nairobi Swahili: The Morphosyntax of Inflectional Prefixes and Subjects'. Unpublished Doctoral Dissertation, UCLA.
- Deen, Kamil Ud (2002b) Underspecified Verb Forms and Subject Omission in Nairobi Swahili. In Beachley, B., A. Brown & F. Conlin (Eds), *The BUCLD 27 Proceedings*, Somerville, MA: Cascadilla Press. pp.220-231.
- Hyams, Nina (1996). 'The underspecification of functional categories in early grammar.' In Clahsen, H. (Ed.) *Generative perspectives on first language acquisition*. Amsterdam, The Netherlands: John Benjamins, pp. 91-127.
- Khamisi, A. M. (1988) 'A Typology of Gaps in Kiswahili sentences.' In *Kiswahili: Journal of the Institute of Kiswahili Research*, 551: 120-133.
- Krifka, Manfred (1995) 'Swahili. In Syntax: Ein Internationales Handbuch Zeitgenössischer Forschung.' In J. Jacobs, A. von Stechow, W. Sternefeld and T. Vennemann (Eds), *An International Handbook Of Contemporary Research*. Berlin, Walter de Gruyter. 2: 1397-1418.
- MacWhinney, Brian (2000). The CHILDES project: Tools for analyzing talk. Third Edition. Mahwah, NJ: Lawrence Erlbaum Associates.
- Meisel, Jurgen. & Maria-Jose. Ezeizabarrena (1996) ' Subject-Verb and Object-Verb agreement in early Basque.' In Clahsen, H. (Ed) *Generative Perspectives in Language Acquisition*. Amsterdam: John Benjamins, pp. 201-239.
- Schaeffer, Jeannette. (2000) 'Object Scrambling and Specificity In Dutch Child Language.' In Powers, S. and C. Hamann (Eds) *The acquisition of scrambling and cliticization. Studies in theoretical psycholinguistics 26*. Dordrecht: Kluwer, 2000, pp. 71-93.
- Schadeberg, Thilo (1984) *A Sketch of Swahili Morphology*. Foris Publications.
- Seidl, Amanda & Dimitriadis, Alexis (1997) 'The Discourse Function of Object Marking in Swahili.' *Papers from the Regional Meetings, Chicago Linguistic Society*, 1997, 331, 373-387.