

## An overview of object marking in Kiluguru\*

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### 1. Introduction

Recent studies in pronominal, clitic and agreement systems, in particular in the Romance languages, have shown that a lot of theoretical insight can be gained from the study of comparatively minute cross-linguistic variation across comparatively closely related languages. Bantu languages provide a rich source for the study of syntactic micro- to medium variation, as there are over 400 Bantu languages spoken, which are without doubt genetically related, and resemble each other fairly closely in broad syntactic structure (cf. for example Cocchi 2000 for drawing a parallel between Romance and Bantu). Most previous studies have drawn attention to this fact mainly with respect to variation found with complex predicates, notably applicatives (e.g. Bresnan & Moshi 1993), but some earlier work is dedicated to objects and object agreement (e.g. Givón 1972, Morolong and Hyman 1977, Kisseberth and Abasheikh 1977, Duranti 1979, Hyman and Duranti 1982). The present paper is intended to further the syntactic study of Bantu languages by providing a fairly detailed description of the syntax of the object marking system of Kiluguru, a Bantu language of about 500,000 speakers living in the area of Morogoro, about 200 km west of Dar es Salaam in Tanzania. Kiluguru belongs to the Zigula-Zaramo group of Central Bantu languages, its Guthrie classification code is G 30 (SIL 2001). Although the paper is not truly comparative, we occasionally mention parallels with, or differences from other Bantu languages. The aim of the paper is mainly descriptive, and no detailed theoretical analysis is provided.

### 2. Subject and object marking in Bantu

Bantu languages are known for their articulated agreement systems whereby grammatical relations are marked morphologically in the verbal template. Most Bantu languages have both subject and object agreement, where most often, subject agreement appears as a mandatory grammatical agreement relation and co-occurs with subject pro-drop, while the status of object marking is more ambiguous and often appears to be more pronominal like (cf. Bresnan & Mchombo 1986). A typical Bantu verb template may look as follows (cf. Schadeberg 1992, 2001):

#### (1) A Bantu Verbal Template

1	2	3	4	5	6	7	8	9
Pre Initial	Initial	Post Initial	Tense	Stem	Ocd	VB	Pre Final	Final
Neg, Focus	Subj Cd	Neg marker	Tense	Stem marker	Object Cd	Verbal Base	Tense	Final Vowel

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The slots in the template show that morphemes of the inflected verb are found in a fixed order, namely, from left to right, 1) pre-initial negation or focus marker, 2) subject concord, 3) post-initial negation marker, 4) tense morphemes, 5) stem marker, a semantically vacuous morpheme which is found with short (mono-syllabic) or vowel initial verbal bases, 6) object concord, 7) the verbal base, which may consist of a verbal root and a number of derivational verb extensions such as applicative, causative, or passive, 8) a pre-final tense morpheme, usually a perfective or past tense, and 9) a final vowel which, in conjunction with other tense markers may express temporal information. The total number of morphological slots in the template is nine, although not all of them can be occupied simultaneously; morphemes associated with slots 1 and 3, and with slots 5 and 6 do not in general occur in the same verb. Furthermore, two adjacent slots may be filled by one complex morpheme, often resulting from phonological processes. In some tenses in Kiluguru, for example, the subject concord and tense morphemes are fused into one, while in other tenses, the final vowel and the verbal base merge as a result of what is known as imbrication. The following Kiluguru verb shows how some of the slots are filled:

- (2) *ha-tu-tza-pfa-ambik-a*  
 Neg-SCd1pl.-Tns-Ocd8-cook-fv  
 ‘We will not cook it (e.g. food)’

Subject and object marking is thus associated with fixed positions in the verbal template. Subject marking is expressed by subject concords found in the initial position. As in most Bantu languages, the Kiluguru nominal system is divided into some twenty nominal classes, each with their own agreement morphemes, of which ten can be grouped into five singular-plural pairs. Thus from the verb agreement alone, the class membership of the subject (and object) can be determined. As far as we can see, all inflected verbs mark the subject with a subject concord (which may be fused with a preceding or following morpheme), and subject pro-drop is licensed throughout:

- (3) *iwana w-o-tzum-a*  
 children SCd2-Tns-run-fv  
 ‘The children are running’

- (4) *w-o-tzum-a*  
 SCd2-Tns-run-fv  
 ‘They are running’

In the sense that subject concord is a necessary part of every inflected verb, it is obligatory. In contrast, object concord is not obligatory in this sense, as both (5), without object concord, and (6), with object concord, are well-formed:

- (5) *ni-many-a iwanu wano*  
 SCd1sg.tns-know-fv people these  
 ‘I know these people’

- (6) *ni-wa-many-a iwanu wano*  
 SCd1sg.tns-Ocd2-know-fv people these  
 ‘I know these people’

The presence of the object concord is thus subject to different, more complex restrictions, and the exact conditions under which an object concord is or is not found are the topic of the remaining part of this paper.

### 3. Object marking in Kiluguru

The object concord system of Kiluguru is fairly liberal and allows object marking to occur in environments where object marking would not be possible in more conservative languages such as Bemba, Chasu, Ha, Ruri, or Swahili. For example, object marking of both locative and infinitival objects is fine (in contrast to Chasu or Ruri), as is, at least with some verbs, the object marking of the remaining object in passivised applicatives. Furthermore, the language has a number of predicates which obligatorily require the presence of an object concord. In the following sections, we discuss these cases, grouped according to the kind of predicate involved, in the following order: simple transitive predicates, predicates requiring an object concord, complex predicates, and predicates with clausal complements ('ECM' constructions). A final section discusses cases of agreement with conjoined NPs.

#### 3.1. Agreement in simple predicates

As a rule, most transitive predicates can be used with or without object concord. The object concord can function as object in the same way a lexical NP does, and it thus resembles an 'incorporated pronoun' (cf. Bresnan & Mchombo 1986, Baker 1985).

- (7) *wa-hulik-a*            *tsila*   *tsinyimbo*    *tso*    *umwande*  
 SCd2.tns-hear-fv    these   songs        of       long\_time\_ago  
 'They heard these songs from a long time ago'
- (8) *wa-tsi-hulik-a*        *tsila*   *tsinyimbo*    *tso*    *umwande*  
 SCd2.tns-Ocd-hear-fv these   songs        of       long\_time\_ago  
 'They heard these songs from a long time ago'
- (9) *wa-tsi-hulik-a*  
 SCd2.tns-Ocd-hear-fv  
 'They heard them'
- (10) *wa-hulik-a*  
 SCd2.tns-hear-fv  
 'They heard' (if licensed by context)

Whether or not the verb can be used without both overt lexical object and object concord is a quality of the individual predicate and independent from object marking. As (10) shows, with a verb like *-hulika*, object drop is fine. The fact that (7) is fine shows that definite objects do not require an object concord. On the other hand, the contrast between (11) and (12) indicates that the presence of an object marker at least favours a definite reading of the object (this is said to be a major function of the object concord in Swahili, cf. a.o. Ashton 1944, Wald 1993):

(11) *n-o-bam-a* *ichitabu*  
 SCd1sg.tns-look\_for-fv book  
 ‘I am looking for a/the book’

(12) *n-o-chi-bam-a* *ichitabu*  
 SCd1sg.tns-Ocd7-look\_for-fv book  
 ‘I am looking for the book’

In accordance with this observation, even the use of necessarily definite personal pronouns does not require the use of an object marker (again, in contrast to Swahili, as shown in (17) and (18)):

(13) *ni-ku-hulik-a* (*ghweghwe*)  
 SCd1sg.tns-Ocd2sg.-hear-fv pron2sg.  
 ‘I heard you’

(14) *ni-hulik-a* *ghweghwe*  
 SCd1sg.tns-hear-fv pron2sg.  
 ‘I heard you’

(15) *ghweghwe* *wanzehe* *wa-ku-hulik-a*  
 pron2sg. elders SCd2-Ocd2sg.-hear-fv  
 ‘You, the elders heard’

(16) *ghweghwe* *wanzehe* *wa-hulik-a*  
 pron2sg. elders SCd2-hear-fv  
 ‘You, the elders heard’

(17) *ni-li-ku-siki-a* (*wewe*) [Swahili]  
 SCd1sg.-Tns-Ocd2sg.-hear-fv pron2sg.  
 ‘I heard you’

(18) *\*ni-li-siki-a* *wewe* [Swahili]  
 SCd1sg.-Tns-hear-fv pron2sg.  
 Intd.: ‘I heard you’

The contrast between Kiluguru and Swahili as seen here seems to indicate that the independent pronouns in Swahili can only be used for emphatic purposes, but cannot fill the requirement for an object. In Kiluguru, while the independent pronouns can be used for emphasis, they nevertheless equally can function as syntactic objects. This contrast is reminiscent of both Porteno Spanish (Suñer 1990) and of the cases of pronoun doubling in Kichagga mentioned by Bresnan & Moshi (1993). The left dislocated object in (16) shows that the object marker is not required in these contexts.

The distribution of object markers discussed so far is equally found with the object marking of infinitival (Class 15) and locative (Class 16-18) objects (in contrast to e.g. Ruri, cf. Massamba 2001: 115):

(19) *tw-o-hulik-a* *kw-imba* *kwewana*  
 SCd1pl.-tns-hear-fv NP15-sing of\_children  
 ‘we are hearing the singing of the children’

- (20) *tw-o-ku-hulik-a*                      *kw-imba*              *kwewana*  
 SCd1pl.-tns-Ocd15-hear-fv   NP15-sing      of\_children  
 ‘we are hearing the singing of the children’
- (21) *ni-many-a*                      *Mlogholo*  
 SCd1sg.-know-fv      Morogoro  
 ‘I know Morogoro’ (but maybe by name only)
- (22) *ni-ha-many-a*                      *Mlogholo*  
 SCd1sg.-Ocd16-know-fv      Morogoro  
 ‘I know Morogoro’ (i.e. the place)
- (23) *ni-i-many-a*                      *Mlogholo*  
 SCd1sg.-Ocd9-know-fv      Morogoro  
 ‘I know Morogoro’ (completely, inside-out, very well)

While there does not appear to be any difference in interpretation between (19) and (20), the difference between (21) and (22) is reminiscent of the one between (11) and (12) in that in (22) the object marker leads to an interpretation of the object as a place, in accordance with its locative class membership, while (21) allows a more ‘indefinite’ interpretation of the object. In (23), the place name Mlogholo is interpreted as name, rather than as place, as the Ocd chosen in class 9. With this object marker, the object again receives a definite-style interpretation in that the predicate is interpreted as holding of the whole place.

As indicated above, object marking is not related to left dislocation, as left dislocation is fine both with and without object marking (cf. (15) and (16) above). Similarly, predicates both with and without object marker are acceptable with ‘canonical’ post verbal objects. The following examples show this with a lexical NP object: (in (24) and (25) the initial vowel of *-ambika* requires the stem marker *-kw-*; in (26) and (27) the stem marker is replaced by the object concord):

- (24) *mayi ka-kw-ambik-a*                      *ipfidyo*  
 mother SCd1.tns-SM-cook-fv              food  
 ‘The mother is cooking food’
- (25) *ipfidyo*              *mayi ka-kw-ambik-a*  
 food                      mother SCd1.tns-SM-cook-fv  
 ‘Food, the mother is cooking’
- (26) *mayi ka-pf-ambik-a*                      *ipfidyo*  
 mother SCd1.tns-Ocd8-cook-fv              food  
 ‘The mother is cooking food’
- (27) *ipfidyo*              *mayi ka-pf-ambik-a*  
 food                      mother SCd1.tns-Ocd8-cook-fv  
 ‘Food, the mother is cooking (it)’

Similarly, in object relatives, the predicate can be used with or without a resumptively construed object concord:

- (28) *hatsi tsi-ng'oma amba-tso wanzehe wo-hurik-a*  
 these 10-drum rel-10 elders SCd2.tns-hear-fv  
 'These are the drums which the elders hear'
- (29) *hatsi tsi-ng'oma amba-tso wanzehe wo-tsi-hurik-a*  
 these 10-drum rel-10 elders SCd2.tns-Ocd10-hear-fv  
 'These are the drums which the elders hear'

The distribution of object marking in simple transitive predicates is thus partly motivated by the syntactic context, as well as by semantic aspects, since, as seen above, in some cases, the object is interpreted as being more definite when an object concord is used. Another, and probably the most important dimension for the analysis of object marking in Kiluguru is presumably the pragmatic one, as the use of object concords is very likely related to discourse anaphoric structure and considerations of speakers' assessments of the information available to their hearers. However, a study of the pragmatics of object marking in Kiluguru is beyond the confines of the present paper.

### 3.2. Agreement in mandatorily object marking predicates

Another set of verbs does not allow the optional use of object concords described in the preceding section, but rather requires obligatorily the use of an object concord. Examples of this type of verb are *-ona*, 'see', *-pfika*, 'meet', and *-ing'a*, 'give', which we discuss in turn.

Examples of *-ona* include the following:

- (30) *ni-kw-on-a*  
 Scd1sg.Tns-Ocd2sg.-see-fv  
 'I saw you'
- (31) *ni-kw-on-a ghweghwe*  
 Scd1sg.Tns-Ocd2sg.-see-fv Pron2.sg.  
 'I saw you'
- (32) *\*ni-on-a (ghweghwe)*  
 Scd1sg.Tns-see-fv Pron2.sg.

The examples show that the use of the object concord is mandatory, while the use of the independent pronoun is optional – it can be used, for example, to add emphasis. However, pronoun or not, the form in (32) is ill-formed. Similarly,

- (33) *wa-m-bon-a (\*waona) (nene)*  
 SCd2.tns-Ocd1sg.-see-fv Pron1sg.  
 'they saw me'
- (34) *ni-w-on-a (\*niona) iwana*  
 SCd1sg.tns-Ocd2-see-fv children  
 'I saw the children'

- (35) *wa-ch-on-a* (\**waona*) *ichitabu*  
 SCd2.tns-Ocd7-see book  
 ‘they saw the book’
- (36) *wa-y-on-a* (\**waona*) *gari*  
 SCd2.tns-Ocd9-see car  
 ‘they saw the car’

In all these examples, the use of the object concord is mandatory. The verb *-ona* cannot be used intransitively or with clearly indefinite objects, and in these contexts a different verb, *-lola*, ‘see’, has to be used:

- (37) *imunu yuno h-o-lol-a*  
 person this Neg.pres-SCd1-see-fv  
 ‘This person doesn’t see’
- (38) *no-bam-a ku-lol-a iwanu*  
 SCd1sg.tns.-want-fv NP-see-fv people  
 ‘I want to look at people’

Thus, *-ona* lexically requires an object concord. A similar situation obtains with the verb *-pfika*, ‘reach, meet’. However, in contrast to the preceding case, *-pfika* can be used without object, but then receives a different interpretation. While the use with object marker can be translated as ‘meet, find’ (examples (39) – (41)), the use without object concord is better rendered as ‘arrive, reach’ (42):

- (39) *wanzehe wa-m-pfik-a isale yangu mjini*  
 elders SCd2.tns-Ocd1-meet-fv friend mine in\_town  
 ‘The elders met my friend in town’
- (40) *wanzehe wa-ni-pfik-a (nene)*  
 elders SCd2.tns-Ocd1sg.-meet-fv pron1sg.  
 ‘The elders met me’
- (41) *wanzehe wa-pfi-pfik-a ipfitabu*  
 elders SCd2.tns-Ocd8-find-fv books  
 ‘The elders found books’
- (42) *wa-pfik-a ukaye kwake*  
 SCd2-arrive-fv house his  
 ‘They have arrived at (been to) his home’

The different meanings of the predicate do not result from the object but seem to depend on the presence or absence of the object concord. The following example shows that the choice of object cannot overrule the interpretation induced by the object concord (cf. the contrast with (41) above):

- (43) *?wanzehe*      *wa-pfik-a*      *ipfitabu*  
 elders            SCd2.tns-find-fv      books  
 ‘?The elders arrived at the books’  
 Intd.: ‘The elders found books’

The verb *-pfika*, like *-ona*, thus appears to lexically require an object concord if it is to be interpreted as ‘meet, find’.

A final example of verbs requiring an object marker is *-ing’a*, ‘give’. The verb is di-transitive and takes prototypically a benefactive/dative and a theme object:

- (44) *mayi*            *ka-mw-ing’a*                      *imwana*      *ipfidyo*  
 mother            SCd1.Tns-Ocd1-give-FV      child            food  
 ‘The mother gave the child food’

The verb requires an object marker, either of the dative or of the theme object:

- (45) *Chibua*            *ko-w-eng’a*                      *iwana*            *ipfitabu*  
 Chibua            SCd.Tns-Ocd2-give-FV      children            books  
 ‘Chibua is giving children books’

- (46) *Chibua*            *ko-pf-ing’a*                      *iwana*            *ipfitabu*  
 Chibua            SCd.Tns-Ocd8-give-FV      children            books  
 ‘Chibua is giving children books’

In (45) the object concord agrees with the benefactive object *iwana*, while in (46) the object concord agrees with the theme object *ipfitabu*. In both cases, both orders object are fine. However, the verb cannot be used without object marker. This last example foreshadows the following section, which is concerned with object marking in complex predicates which may take more than one object.

### 3.3. Agreement with complex predicates

Complex predicates in Bantu result from processes of verbal derivation which change the meaning and/or valency of the base verb (see Marten (2002) for an analysis of the relation between the changes in meaning and valency in applicative verbs). We are here mainly concerned with applicative, causative, and passive constructions.

The object marking with complex predicates is different from the data with *-ing’a*, ‘give’, above, where both objects could be object marked. With applicative forms such as *-ambikila*, ‘cook (appl)’, both orders of objects are fine, but only the benefactive object may be object marked (in general, the object marked object precedes the unmarked object, and it is the first object which is emphasized. In addition, applicatives without valency change can be used for predicate emphasis):

- (47) *mayi*      *ko-w-ambik-il-a*                      *iwana*            *ipfidyo*  
 mother SCd1-Ocd2-cook-appl-fv      children            food  
 ‘The mother is cooking food for the children’

- (48) *\*mayi*      *ko-pf-ambik-il-a*                      *ipfidyo*            *iwana*  
 mother SCd1-Ocd7-cook-appl-fv      food                      children  
 ‘The mother is cooking food for the children’



Similarly, with the predicate *-imbila*, ‘sing (appl)’, only the benefactive object can be object marked:

- (49) *Chibua ka-w-emb-il-a iwana itzinyimbo*  
 Chibua SCd-Tns-Ocd2-sing-appl-FV children songs  
 ‘Chibua was singing the children songs’
- (50) \**Chibua ka-tz-imb-il-a iwana itzinyimbo*  
 Chibua SCd-Tns-Ocd10-sing-appl-FV children songs  
 ‘Chibua was singing the children songs’

With locative and instrumental applicatives, only the theme object can be object marked:

- (51) *Chibua ka-pfy-ambik-il-a mujiko ipfidyo*  
 Chibua SCd-Tns-Ocd8-cook-appl-FV in\_kitchen food  
 ‘Chibua was cooking in the kitchen’

Both objects of an applicative can be promoted to subject ((52) and (53)). If the theme argument becomes subject, the remaining benefactive object can be object marked (54), but the remaining theme argument cannot be object marked with a benefactive subject (55):

- (52) *iwana w-ambik-il-w-a ipfidyo na mayi*  
 children SCd2.tns-cook-appl-pass-fv food by mother  
 ‘The children had food cooked by the mother’
- (53) *ipfidyo pfy-ambik-il-w-a iwana na mayi*  
 food SCd8.tns-cook-appl-pass-fv children by mother  
 ‘The food was cooked for the children by the mother’
- (54) *ipfidyo pfya-w-ambik-il-w-a iwana na mayi*  
 food SCd8.tns-Ocd2-cook-appl-pass-fv children by mother  
 ‘The food was cooked for the children by the mother’
- (55) \**iwana wa-pf-ambik-il-w-a ipfidyo*  
 children SCd2.tns-Ocd8-cook-appl-pass-fv food  
 Intd.: ‘The children had food cooked’

The object marking strategies with applied predicates are thus different from the lexially di-transitive predicate *-ing’a*, ‘give’, where both objects could be object marked.

With causative constructions, object marking depends on the presence or absence of the causee. If the causee is expressed, it receives object marking. Again, both orders of objects are possible:

- (56) *wanzehe wa-m-lim-its-a Chuma imighunda*  
 elders SCd2.tns-Ocd1-farm-caus-fv Chuma fields  
 ‘The elders made Chuma farm the fields’

- (57) *wanzehe*      *wa-m-lim-its-a*                      *imighunda*      *Chuma*  
 elders              SCd2.tns-Ocd1-farm-caus-fv field              Chuma  
 ‘The elders made Chuma farm the fields’
- (58) \**wanzehe*      *wa-i-lim-its-a*                      *imighunda*      *Chuma*  
 elders              SCd2-Ocd4-farm-caus-fv fields              Chuma  
 Intd.: ‘The elders made Chuma farm the fields’

However, if the causee is not expressed, the theme object can be object marked:

- (59) *wanzehe*      *wa-i-lim-its-a*                      *imighunda*  
 elders              SCd2-Ocd4-farm-caus-fv fields  
 ‘The elders had the fields farmed’

The same distribution is found with *-ambikitsa*, ‘cook (caus)’:

- (60) *wanzehe*      *wa-mw-ambik-its-a*                      *Chuma ipfidyo*  
 elders              SCd2.tns-Ocd1-cook-caus-fv Chuma food  
 ‘The elders made Chuma cook food’
- (61) \**wanzehe*      *wa-pf-ambik-its-a*                      *ipfidyo Chuma*  
 elders              SCd2.tns-Ocd8-cook-caus-fv food Chuma  
 Intd.: ‘The elders made Chuma cook food’
- (62) *wanzehe*      *wa-pf-ambik-its-a*                      *ipfidyo*  
 elders              SCd2.tns-Ocd8-cook-caus-fv food  
 ‘The elders had food cooked’

The distribution here may well be related to some hierarchical ordering of clause participants, where the causee ranks higher, possibly because of their animacy, than the theme argument (an idea which has been discussed variously in the literature, see e.g. Hyman & Duranti 1982).

### 3.4. ECM constructions

Before turning to conjoined objects, we briefly discuss object marking with predicates which take a clausal complement. These look like ‘exceptional case marking’ (ECM) (or, in older terminology, accusative cum infinitive (ACI)) constructions known from European languages, where the subject of the (non-finite) complement clause is morphologically treated as the object of the matrix predicate, by, for example, receiving accusative or non-subject case in languages with morphological case (cf. e.g. Chomsky 1981, Haegeman 1995):

- (63) *They wanted him to dance*
- (64) *Sie liessen ihn lesen*                      [German]  
 they let him read  
 ‘They let him read’

The pronoun in both (63) and (64) receives its case from the matrix predicate, while at the same time functioning as the ('logical') subject of the predicate of the subordinate clause. A similar construction is found in Kiluguru, where, however, the subordinate clause is not infinitival, but marked as optative (or, subjunctive), a non-finite tense form used to express subordination:

- (65) *wanzehe*      *wo-m-bam-a*                      *imwanafunzi*   *asome*  
*ichitabu*  
 elders              SCd2.tns-Ocd2-want-fv          student              Scd1-read          book  
 'The elders wanted the students to read a book'
- (66) *wanzehe*      *wo-bam-a*                      *imwanafunzi*   *asome*              *ichitabu*  
 elders              SCd2.tns-want-fv          student              Scd1-read          book  
 'The elders wanted the students to read a book'
- (67) *wanzehe*      *wa-m-tend-a*                      *imwana*              *abighe*  
 elders              SCd2.tns-Ocd1-make-fv          child                      play  
 'The elders made the child play'
- (68) \**wanzehe*      *wa-m-bam-a*                      *imwana*              *ku-bigha*  
 elders              SCd2.tns-Ocd1-want-fv          child                      NP15-play  
 'The elders wanted the child to play'

The examples in (65) and (66) show that object marking in ECM contexts is possible (65), but not necessary (66), in accordance with the observations made earlier on object marking with simple transitives. (67) shows object marking with a different predicate. Finally, (68) shows that object marking is not possible with infinitival complements, so that the construction in Kiluguru differs from the corresponding English or German constructions in this respect, as well as from Swahili, where object marking with infinitival complements is fine:

- (69) *Tu-na-wa-tak-a*                      *ndugu zetu*   *Waislamu walioko*   *Pakistan*  
 Scd1pl.-tns-Ocd2-want-fv          brothers our   Muslims who.are.at Pakistan
- ku-tumia uwezo wao wote*   *ku-zuia*              *mashambulizi Marekani ...*  
 inf-use strength their all      inf-prevent          attacks              American ...
- 'We want our Islamic brothers in Pakistan to use all their strength to withstand American attacks ...'  
 [Majira, 25/9/01, p. 1]

The object concord *-wa-* in the first verb refers to the subject of the infinitival complement *kutumia*, 'to use'. More work is needed to ascertain both the object marking and the syntax of subordination in Kiluguru and Swahili to appreciate the underlying structure of these data.

### 3.5. Agreement with conjoined NPs

The final section of this overview of object marking in Kiluguru is devoted to agreement with conjoined objects. The concord resolution in subject and, to a lesser

extent, object agreement with conjoined noun phrases has attracted some attention for some time (Bokamba 1985, Corbett 1983, 1991), and has more recently more extensively been discussed from a more theoretical perspective in a number of works (Johannessen 1996, 1998, Aoun, Benmamoun & Sportiche 1994, 1999, Sadler 2000). The situation in Swahili is described in Marten (2000). What makes agreement with conjoined NPs interesting is that languages employ different strategies as to how the agreement with two nouns is determined. The problem is that with, for example, a class 5 object, object agreement, if present, will be marked by a class 5 object concord, agreeing with the object:

- (70) *wa-ly-on-a*                      *li-bwe*  
 SCd2-Ocd5-se-fv      NP5-stone  
 ‘They saw the stone’

It is not so clear, however, which object concord (or, for that matter, subject concord with conjoined subjects) is chosen when the object consists of two or more NPs. There are three prominent strategies to resolve this problem (in addition to avoiding agreement with conjoined NPs all together by choosing an alternative construction); 1) to calculate the appropriate plural class, for example, to choose for a conjunction of two class 3 (i.e. singular) objects a class 4 object concord, which is the plural class corresponding to class 3; 2) to use a default object concord for all conjoined objects, e.g. a class 8 or class 10 object concord; or, 3) to choose an object marker which agrees with only one conjunct of the conjoined NP, e.g. for a conjunction of two class 3 objects, a class 3 object marker. For this last strategy of partial agreement, an additional question is, what determines the choice of which conjunct is the one with which the object concord agrees.

Kiluguru, like Swahili, employs all three strategies of concord resolution. Which strategy is chosen is determined not only by structural criteria, but depends on semantic, syntactic and discourse-pragmatic factors. In particular, different strategies exist for nouns referring to animate referents as opposed to non-animate referents – a semantic criterion – while the choice of the agreeing conjunct in partial agreement structures is partly determined by syntactic structure, or linear order, and partly by the discourse-pragmatic function of the conjuncts, in particular which one is focussed.

### 3.5.1. Agreement with animate NPs

Like in many Bantu languages, most nouns referring to human referents are found in the noun (or gender) classes 1 and 2. Nouns referring to animals are mostly found in classes 9 and 10. When nouns of class 1 are conjoined as the subject of a clause, the verb shows invariably plural, i.e. class 2 agreement. The same holds for a conjoined subject of another class with an animate referent:

- (71) *Chimitsi na Chuma*      *wa-ts-a*  
 Chimitsi and Chuma      SCd2-come-fv  
 ‘Chimitsi and Chuma came’  
 [1+1 = 2]

- (72) \**Chimitsi na Chuma ka-ts-a*  
 Chimitsi and Chuma SCd1-come-fv  
 ‘Chimitsi and Chuma came’  
 [\*1+1 = 1]
- (73) *yumbwa na ing’ombe w-on-w-a ne wanzehe*  
 9.dog conj 9.cow SCd2-see-pass-fv by elders  
 ‘The dog and the cow were seen by the elders’  
 [9+9 = 2]

However, the subject is inverted, and thus follows the predicate, both plural agreement and singular (i.e. first conjunct) agreement are fine:

- (74) *wa-ts-a Chimitsi na Chuma*  
 SCd2-come-fv Chimitsi and Chuma  
 ‘There came Chimitsi and Chuma’  
 [2 = 1+1]
- (75) *ka-ts-a Chimitsi na Chuma*  
 SCd1-come-fv Chimitsi and Chuma  
 ‘There came Chimitsi and Chuma’  
 [1 = 1+1]

The licensing of partial agreement thus depends on the word order of subject and predicate.

When the conjoined NP is the object, object agreement with the full NP, i.e. class 2, or partial agreement with the first conjunct is possible:

- (76) *ni-wa-many-a Chimitsi na Chuma*  
 SCd1sg.tns-Ocd2-know-fv Chimitsi and Chuma  
 ‘I know Chimitsi and Chuma’  
 [2 = 1+1]
- (77) *ni-mu-many-a Chimitsi na wanaghe*  
 SCd1sg.tns-Ocd1-know-fv Chimitsi and children.his  
 ‘I know Chimitsi and his children’  
 [1 = 1+2]

Yet, when the object is fronted, partial agreement is not possible, and the verb shows full class 2 agreement, exactly as in the conjoined subject case:

- (78) *Chimitsi na Chuma ni-wa-many-a*  
 Chimitsi and Chuma SCd1sg.tns-Ocd2-know-fv  
 ‘Chimitsi and Chuma, I know’  
 [1+1 = 2]
- (79) \**Chimitsi na Chuma ni-mu-many-a*  
 Chimitsi and Chuma SCd1sg.tns-Ocd1-know-fv  
 ‘Chimitsi and Chuma, I know’  
 [\*1+1 = 1]

Thus, while the question of whether the referents of conjoined NPs are animate or not is semantic in nature, the licensing of partial agreement depends on the linear order of the conjoined NP and the predicate. If the conjoined NP precedes the verb, the verb shows full agreement, whereas if the conjoined NP follows the verb, both full and partial agreement is possible.

### 3.5.2. Agreement with non-animate NPs

The situation with conjoined NPs with non-animate referents is different from the situation described above. When the conjunction of two non-animate NPs functions as subject, the verb may show resolved agreement, i.e. agreement with some appropriate plural class, or agree with either of the two conjuncts. It is this conjunct which carries pragmatic focus:

(80) *chi-ti*            *na*        *ghumu-biki*    *pfi-ghul-iw-a*  
 7-chair            and        3-tree            SCd8-buy-pass-fv  
 ‘The chair and the tree were bought’  
 [7 + 3 = 8]

(81) *ghumu-biki*    *ne-chi-kapu*            *pfi-ghu-li-w-a*  
 3-tree            and-7-basket            SCd8-buy-pass-fv  
 ‘The tree and the basket were bought’  
 [3 + 7 = 8]

(82) *chi-ti*            *na*        *ghumu-biki*    *chi-ghul-iw-a*  
 7-chair            and        3-tree            SCd7-buy-pass-fv  
 ‘*The chair* and the tree were bought’  
 [7 + 3 = 7]

(83) *chi-ti*            *na*        *ghumu-biki*    *u-ghul-iw-a*  
 7-chair            and        3-tree            SCd3-buy-pass-fv  
 ‘The chair and *the tree* were bought’  
 [7 + 3 = 3]

In (70) the verb shows class 8 agreement, which is the plural class corresponding to class 7 of the first NP. Often, the first conjunct, or its corresponding plural are chosen, but, as (81) shows, it may also be the plural class corresponding to the second conjunct. In addition, class 8 and class 6 agreement markers are generally preferred over other classes. Furthermore, (82) and (83) show that agreement marking can be exploited to convey pragmatic meaning, as in the appropriate context, when the relevant conjunct is focussed, the verb may show agreement with either the first or the second conjunct.

Object agreement with non-animate NPs is, like agreement with animate NPs, subject to word order. However, in this case, a following conjoined NP normally shows first conjunct agreement; while concord resolution is only rarely found with verb-object order and appears to be restricted to conjoined singular NPs, as in the contrast between (86) and (87):

- (84) *wanzehe*      *wa-gha-ghul-a*                      *ma-bwe*      *na*      *li-banzi*  
 elders              SCd2-Ocd6-buy-fv                      NP6-stone      and      NP5-wood  
 ‘The elders bought stones and a wooden board’  
 [6 = 6+5]
- (85) *wanzehe*      *wa-li-ghul-a*                                      *li-banzi*      *na*      *ma-bwe*  
 elders              SCd2-Ocd5-buy-fv                                      NP5-wood      and      NP6-stone  
 ‘The elders bought a wooden board and stones’  
 [5 = 5+6]
- (86) \**wanzehe*      *wa-gha-ghul-a*                                      *li-banzi*      *na*      *ma-bwe*  
 elders              SCd2-Ocd6-buy-fv                                      NP5-wood      and      NP6-stone  
 Intd.: ‘The elders bought a wooden board and stones’  
 [\*6 = 5+6]
- (87) *wanzehe*      *wa-gha-ghul-a*                                      *li-banzi*      *na*      *li-bwe*  
 elders              SCd2-Ocd6-buy-fv                                      NP5-wood      and      NP5-stone  
 ‘The elders bought a wooden board and a stone’  
 [6 = 5+5]

As can be seen from (84) and (85), it is the first conjunct which shows agreement with the verb, while second conjunct agreement is impossible in (86). Resolved agreement is possible with two class 5 objects in (87). In contrast, when the object is fronted, both first and second conjunct is possible, depending, as with conjoined subjects, on which conjunct is focussed. In addition, the verb may show resolved concord (90):

- (88) *ichi-ti*              *na*      *ghumu-biki*      *wanzehe*              *wa-chi-ghul-a*  
 NP7-chair              and      NP3-tree              elders              SCd2-Ocd7-buy-fv  
 ‘A chair and a tree the elders bought’  
 [7 + 3 = 7]
- (89) *ichi-ti*              *na*      *ghumu-biki*      *wanzehe*              *wa-u-ghul-a*  
 NP7-chair              and      NP3-tree              elders              SCd2-Ocd3-buy-fv  
 ‘A chair and a tree the elders bought’  
 [7 + 3 = 3]
- (90) *ichi-ti*              *na*      *ghumu-biki*      *wanzehe*              *wa-pfi-ghul-a*  
 NP7-chair              and      NP3-tree              elders              SCd2-Ocd8-buy-fv  
 ‘A chair and a tree the elders bought’  
 [7 + 3 = 8]

Object and subject agreement with conjoined NPs thus shows how semantic, syntactic and pragmatic factors play a role in determining this grammatical subsystem.

#### 4. Conclusion

In this paper, we have sketched the structure of object marking in Kiluguru, and shown how it involves semantic, syntactic and pragmatic factors. We have not proposed any analysis of the system, but rather hope that the data provided here stimulate and lead to further research both in comparative Bantu syntax and in general linguistics.

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In this article, we present an extensive overview of object detection and tracking methods. At the same time, we also introduces some related theoretical knowledge (e.g., feature and classification). The reason why the object detection and tracking in summarized together, is because the object detection can be said to be the foundation of the object tracking, and they all need to choose the right features and training effective classification.Â @article{Zhao2015AnOO, title={An overview of object detection and tracking}, author={Yi Zhao and Haobin Shi and Xuanwen Chen and Xuesi Li and Cong Wang}, journal={2015 IEEE International Conference on Information and Automation}, year={2015}, pages={280-286} }. Yi Zhao, Haobin Shi, +2 authors Cong Wang. 2001. An overview of object marking in Kiluguru. SOAS Working Papers in Linguistics and Phonetics 11, 259â€“275. Marten, Lutz & van der Wal, Jenneke.Â Riedel, Kristina. 2009. The syntax of object marking in Sambia: A comparative Bantu perspective. Ph.D. dissertation, University of Leiden. Riedel, Kristina & Marten, Lutz. 2012. Locative object marking and the argumentâ€“adjunct distinction. Southern African Linguistics and Applied Language Studies 30.2, 277â€“292. Rooth, Mats.