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# **Agreement, word order and information structure: some Bantu examples**

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## 1. INTRODUCTION

In this paper I present an analysis of verb-subject (sometimes called ‘subject-inversion’) constructions in Bantu, taking into account syntactic, phonological, and information structure properties, as well as agreement properties of the predicates involved in the inversion structures. The main aim of the paper is to show how the different aspects of the construction are related to each other. I will argue that the phonology, syntax and information structure of verb-subject constructions in Bantu are independent and cannot be derived from each other, but that, on the other hand, all aspects of the construction share the function of contributing information for the establishment of semantic meaning in context. The analysis I present is formulated in Dynamic Syntax (DS, Cann et al. 2005), a syntactic theory of utterance interpretation which models how hearers derive semantic representations of content through incremental lexical and syntactic processes on a left-to-right basis. Given the occasion, two secondary aims will be addressed in the paper. On the one hand, I will briefly discuss the relation of the analysis presented to the wider context of linguistic theory, and in particular to the Firthian notion of polysystemic analysis and his idea of ‘linguistic analysis as a study of meaning’ (Firth 1968). Secondly, the relevance of the analysis presented for linguistic description and documentation will be addressed in the conclusion. The paper is organized as follows: section 2 provides a detailed description of the relevant constructions, section 3 related the data to a wider theoretical context, section 4 presents the DS analysis, and section 5 discusses some implications and conclusions.

## 2. VERB-SUBJECT CONSTRUCTIONS IN BANTU

Word-order in Bantu has been subject to considerable interest in the linguistic literature over the last decades. Among the key themes of the discussion are the relation between agreement and word-order, the question whether Bantu languages are configurational, and the relation between word-order, information structure, and prosody. In this paper, I will be concerned with constructions in which the subject follows the verb, and the following sections give an overview of the different aspects involved in analysing these constructions: word-order, prosody, information structure and agreement.

2.1. Word-order

The basic word-order of (most) Bantu languages is typically SVO as in the following Chichewa example (e.g. Bearth 2005, Bresnan and Mchombo 1987):<sup>1</sup>

- (1) Chichewa  
*Njûchi*      *zi-ná-lum-a*                      *a-lenje*  
 10.bees      SC10-PAST-bite-FV              2-hunters  
 ‘The bees bit the hunters’  
 S – V – O

However, a range of other word-orders are possible, often determined by the discourse context and related to subject and object marking on the verb (Bresnan and Mchombo 1987). Of particular interest for this paper are some cases where the verb precedes the subject:

- (2) Swahili  
*Baada ya siku mbili wa-li-fik-a*                      *vi-jana*      *wa-wili*  
 After GEN days two SC2-PAST-arrive-FV      8-youths      2-two  
 ‘After two days, two youths arrived’  
 V – S

- (3) Herero  
*pé-rís-à*                                      *òvá-éndá*      *òzò-ngòmbé*  
 SC16.HAB-feed-FV      2-guests      10-cows  
 ‘Guests feed cattle’/‘There feed guests cattle’  
 V – S – O

- (4) Herero  
*vé-rís-à*                                      *òzó-ngòmbè,*      *òvâ-éndà*  
 SC2.HAB-feed-FV      10-cows              2-guests  
 ‘They feed the cattle, the guests’  
 V – O – S

In terms of word-order, two types of verb-subject constructions can be systematically distinguished. ‘Presentational’ constructions such as (2) and (3) show verb-subject (VS) with intransitive predicates, but verb-subject-object (VSO) order with transitive predicates. In contrast, ‘after-thought’ constructions such as (4) have VS order with intransitive predicates, but VOS order with transitive predicates. In addition, the two constructions can be distinguished in

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<sup>1</sup> The following non-standard abbreviations are used in the glosses: CC = complement case; CONJ = conjoint verb form; DC = default case; DISJ = disjoint verb form; FV = final vowel; HAB = habitual; NAR = narrative; REMIMPFV: remote imperfective; REMPERF= remote perfective; SC = subject concord; 1, 2, 3, etc.: noun class number. I am grateful to Jekura Kavari for providing and discussing the Herero data as well as to Prof. Arvi Hurskainen and the University of Helsinki for allowing me access to their Swahili corpus.

terms of prosody and information structure. Presentational constructions group the verb and the subject together prosodically and typically present new information. In contrast, ‘after-thought’ constructions prosodically mark the verb (plus object) and the subject as distinct, and present the subject as old or presupposed information. However, variation exists between different Bantu languages in terms of which subject agreement marker can be used in which construction. In the following sections, I will illustrate these differences in more detail before turning to the question what the exact relation between word-order, syntax, prosody and information structure in these two constructions is.

## 2.2. Prosody

In many Bantu languages presentational and after-thought constructions are distinguished by prosodic tone marking. For example, in Tswana the distinction is expressed by different tone patterns on the verb:

- (5) Tswana  
*gó-tsámá-ilé*                      *Mphó*  
 SC17-go-PERF.CONJ              Mpho  
 ‘There has gone Mpho’  
 (Creissels 1996: 113)
- (6) Tswana  
*ó-tsámà-ilè*                      *Mphó*  
 SC1-go-PERF.DISJ              Mpho  
 ‘He has gone, Mpho that is’  
 (Creissels 1996: 113)

The tone pattern on the verb stem and inflectional suffix in (5) is a so-called ‘conjoint’ tone pattern, while the tone pattern in (6) is ‘disjoint’. The tones are not predictable from general Tswana tone rules but are grammatically determined: the conjoint pattern indicates that the verb is followed by some constituent within a relevant syntactic domain (presumably the clause), while the disjoint tone pattern indicates that the verb is final within this domain (Creissels 1996).

A similar distinction is found in Herero, but here the difference is marked by the tone pattern of the post-verbal subject and not of the verb:

- (7) Herero  
*p-á-hìt-í*                      *òvá-ndù*  
 SC16-PAST-enter-FV              2CC-people  
 ‘People entered/There entered people’
- (8) Herero  
*v-á-hìt-í,*                      *òvà-ndù*  
 SC2-PAST-enter-FV              2DC-people  
 ‘They entered, the people’



- (11) Herero  
*p-à-rí*                      *òmú-rúmèndú*              *w-à-t-íré*  
 SC16-REMIMPFV-be      2-man                      SC1-REMPERF-die-PERF
- ná*      *péndúkà*  
 and      resurrect  
 ‘The (once) was a man (who) died and resurrected’  
 (Möhlig et al. 2002: 105)

In (11), the main character of the story, man who died and resurrected, is introduced for the first time, through a presentational construction. Similar evidence can also be found in question-answer pairs, which supports the conclusion from the examples discussed here, namely that presentational constructions are found mainly in contexts where new information is introduced (either through the subject, or through the whole clause), while after-thought constructions presuppose the known status of the post-verbal subject.

#### 2.4. Agreement

The discussion so far has shown that the two construction types differ consistently in terms of word-order (VSO vs. VOS), prosody (conjoint/complement case vs. disjoint/default case) and information structure (new vs. presupposed information). However, subject agreement, the fourth characteristic of VS structures in Bantu, criss-crosses this division. While all Bantu languages discussed in this paper have after-thought constructions with matching subject agreement (as seen in the relevant examples above), presentational constructions are found in some languages only with non-matching, default agreement (e.g. Herero, siSwati, Tswana), but in other languages with either default or matching agreement (e.g. Dciriku, Nsenga, Swahili). Thus, for example, presentational constructions in Herero are only possible with (grammaticalized) locative subject marking (‘class 16’ in Bantu philology) as shown in example (3), above, in contrast to the ungrammatical (12):

- (12) Herero  
*\*vé-rís-à*                      *òvá-éndá*              *òzò-ngòmbé*  
 SC2.HAB-feed-FV      2CC-guests      10-cows  
 Intended: ‘There feed guests cattle’

The problem in (12) is that it is a presentational construction in terms of word order and prosody, but that the subject concord agrees in class with the following subject. However, in Swahili, in contrast, presentational constructions with locative subject concord (13), as well as with agreeing subject concord are fine (as in 14, and also in example (2) above):

- (13) Swahili  
*Mara ile pa-li-kuj-a ndege*  
 instant that SC16-PAST-come-FV 9.bird  
 ‘At that instance a bird came ...’
- (14) Swahili  
*Baada ya muda ki-ka-j-a ch-akula,*  
 after GEN days SC7-NAR-come-FV 7-food  
 ‘And after a while, food arrived ...’

Thus, while presentational and after-thought constructions can be identified and distinguished by a number of characteristics, in terms of the agreement possibilities for the subject concord, there is cross-linguistic variation. In some languages an agreeing subject marker is found in after-thought constructions and a default, locative subject marker in presentational constructions, while in others, agreeing subject markers are found both in after-thought constructions and presentational constructions. In section 4, I will propose an analysis which addresses the salient points of the construction. However, before that, I will briefly highlight some theoretical contexts relevant to the analysis.

### 3. HISTORICAL AND THEORETICAL BACKGROUND

In the following section I will present an analysis of the data discussed above in terms of Dynamic Syntax (DS). Space does not permit the presentation of a thorough introduction to the DS model, but three key features of the model which underpin the analysis are worth mentioning. First, DS assumes that the key quality of humans’ linguistic knowledge is their ability to build semantic representations of content from lexical and contextual information on an incremental, left-to-right basis. Knowledge of language is thus seen as essentially use-related. Even though this knowledge is taken to be psychological and hence ‘competence’ rather than ‘performance’, competence is closely related to, and presumably, in evolutionary terms, results from performance. Secondly, human language is characterised by a high degree of underspecification, which allows the use of essentially the same expressions in an infinite variety of different contexts. Pronouns are a prime example of this, as pronominal expressions have to be interpreted from the context, even though they have to be resolved according to lexically specified locality restrictions. Finally, the model assumes that lexical, prosodic and contextual information feeds into the construction of meaning but is not part of syntax. Thus, contrary to the majority of current syntactic models, DS does not have syntactic primitive notions representing contextual effects such as ‘topic’ and ‘focus’, e.g. TOP and FOC projections or predicates, as employed in Minimalism or LFG. As will be seen in more detail below, contextual effects in DS are the result of the interaction of structural choices of how information is presented to the hearer and the context in which these choices are made.

Even from this brief sketch provided, it is clear that DS differs in some respects from other current syntactic models. Like Minimalism, LFG or HPSG, it is a formal model which assumes some notion of competence and provides an explicit formal characterisation of syntactic processes, in contrast to many functional approaches to language structure. On the other hand, it differs from other formal models in the comparatively higher status it accords to language use, and in particular to utterance interpretation. Furthermore, the notions of underspecification and the resolution of underspecification in context result in a different approach to the syntax-pragmatics interface, where contextual, pragmatic information interacts with syntax (and lexical information) at all stages of structure building (so as to resolve underspecification even in very local contexts), so that it is not necessary to postulate syntactic representations of information structure. In a similar way, phonological and prosodic information is analysed as contributing to the establishment of semantic structure without being part of syntax.

In the DS approach to the interaction of different domains of linguistic analysis, syntactic knowledge is less central than in most other current approaches to linguistics (which are sometimes criticized as being ‘syntacto-centric’). However, the DS conception has a somewhat surprising historical antecedent in the Firthian notion of polysystematicity. In some sense, this is not surprising, as both Firth and DS have close associations with SOAS, but no direct link between the two has ever been mentioned, nor is there real continuity of conceptual argumentation or terminology. Furthermore, given Firth’s rather eclectic approach to putting ideas into writing, apparent parallels between his work and DS may well be spurious. However, in this final part of this section I will briefly explore potential parallels between the two. In particular, Firth’s notion of meaning as encompassing a number of independent functions – phonological, lexical, syntactic – which all contribute to the establishment of the meaning of the utterance is more compatible with DS assumption than with, say, Minimalist views of syntax:

Meaning, then, we use for the whole complex of functions which a linguistic form may have. The principal components of this whole meaning are phonetic function, which I call ‘minor’ function, the major functions – lexical, morphological, and syntactical (to be the province of a reformed system of grammar), and the function of a complete locution in the context of situation, or typical context of situation, the province of semantics. (Firth 1935: xxx)

It is also noteworthy that in this passage, Firth talks about the context of situation, another key term of Firthian linguistics according to which, in modern terms, the well-formedness (including grammaticality) of an utterance is partly a function of the context in which it is found. While this is difficult to express in most frameworks, a very similar idea is discussed in Cann et al. (2005), providing another parallel between Firthian conceptions and DS.

In a somewhat less transparent passage, Firth describes his approach as polysystemic:

The *abstractions* or *schematic constructs* set up are made at a series of distinct mutually complementary *levels*. *Renewal of connection* with the *processes and patterns of life* in the *instances* of experience is the final justification of abstract linguistics. Linguistic analysis must be polysystemic. For any given language there is no coherent system (*où tout se tient*) which can handle and state all the facts. (Firth 1968: 24, probably written around 1952/53, italics in original)

As in the earlier quote, Firth argues for the establishment of different, complementary levels of linguistic analysis, as no single one system can be expected to provide a full explanation of all the facts linguistic analysis should explain. These levels are unified in their overall contribution to explaining the meaning of a given utterance in context: Renewal of connection with instances of experience and patterns of life seems to be a complicated way of saying that linguistic analysis has to take into account the context in which a given utterance is found.

While the short discussion provided here cannot be more than suggestive, I nevertheless thought it worthwhile to highlight some possible parallels between Firthian ideas and DS. Despite many differences which doubtless exist, both theories seem to entertain ideas about (i) the overall contribution of all aspects of linguistic structure to ‘meaning’, (ii) the context-dependence of natural language interpretation at all levels of structure, and (iii) the relation between different linguistic structures as independent and complimentary. In the following section, I will provide more detail of the DS analysis of VS structures in Bantu, and return briefly to the meta- theoretical aspects of the analysis in the conclusion.

#### 4. DYNAMICS AND POLYSYSTEMATICITY

The analysis I propose assumes the basic DS ideas outlined in the preceding section, namely that (i) semantic representations are built from lexical and contextual information on an incremental, left-to-right basis, (ii) pronominal expressions are interpreted in context and are resolved according to lexically specified locality restrictions, and (iii) that lexical, prosodic and contextual information feeds into the construction of meaning but is not part of syntax. I also assume that Bantu subject markers are essentially pronominal and independently stored in the lexicon. For reasons of space, I can only sketch the key points of the analysis here, while the exact formalization has to await a future occasion. However, the outline given here should suffice to give an idea of the basic approach I am taking.

#### 4.1. 'Pro-drop' and SV structures

As an essential background to the analysis, it is important to note that verb-forms with subject marker, but without overt subject NPs are well-formed in Swahili:

- (15) Swahili  
*a-li-fik-a*  
 SC1-PAST-arrive-FV  
 'S/he arrived'

This means that subject markers function like pronouns, in that their interpretation can be established entirely from context, and that (16), for example, is interpreted as 'Daudi arrived' in a context in which Daudi is the contextually relevant antecedent for the pronominal subject marker. Under this view, the presence of a pre-verbal subject can be seen as providing the context for the interpretation of the subject marker, as it comes before the subject marker. By the time the subject marker needs to be interpreted, the information from the subject NP is available and can be used for its interpretation:

- (16) Swahili  
*Daudi a-li-fik-a*  
 Daudi SC1-PAST-arrive-FV  
 'Daudi arrived'/'(As for) Daudi, he arrived'

Irrespective of the exact analysis of the pre-verbal subject (which would be a different discussion, see e.g. Bresnan and Mchombo 1987, Demuth and Johnson 1989 and Marten and Kempson 2002), I take it that SV structures are compatible with a pronominal analysis of subject markers.

#### 4.2. VS structures

How, then, can this analysis be extended to VS structures? The main point about VS structures is that the overt subject NP cannot be analysed as part of the context in the same way as it can be in SV structures. The reason for this is that at the time the pronominal subject markers is parsed and thus needs to be interpreted, the information from the overt subject NP is not yet available. Thus, the question becomes, what information is available from the context in VS structures? The answer to this question is closely linked to the difference between after-thought and presentational constructions. In the former case, I assume that there is typically some information in the context, but it is not very good: the pronominal subject marker can be interpreted, but there is some doubt about the correctness of the interpretation. In such a situation, the post-verbal after-thought subject serves to ascertain that the subject pronominal has been interpreted correctly. It reflects the speaker's doubt as to whether the hearer has identified the subject pronoun correctly, and it can be understood by the hearer as a check on his/her interpretation: The interpretation given to the subject pronominal from the context at the time the subject marker was parsed has to match the information from the post-verbal subject. If it does, the interpretation is confirmed, if it does not, a

different interpretation for the subject has to be found, consistent with the information from the after-thought subject. On the other hand, in presentational constructions, there is nothing in the context which could provide an interpretation for the pronominal subject marker. The interpretation of the subject has to be put on hold, as it were, awaiting further information. It can only be achieved once the post-verbal subject is parsed. In presentational constructions, the overt subject NP is much more crucial, from an information point of view, than in after-thought constructions, and this explains why it is tied much more tightly to the predicate than the after-thought subject, in terms of word-order and prosody. Information structure effects follow from this analysis with recourse to pragmatic principles, and in particular Relevance Theory (Sperber and Wilson 1995) assumptions about trade-offs between cognitive efforts and communicative effects: Keeping the interpretation of the subject pronoun open is more costly than using such a pronominal element in a context (linguistically given or not) where its interpretation can be achieved on-line. These additional costs are set off by additional communicative effects, over and above the semantically encoded proposition, namely commonly observed ‘focus’ effects.

#### *4.3. Agreement*

The final piece in the puzzle is the cross-Bantu variation in agreement patterns noted above. The explanation of this variation follows from extending the idea that Bantu subject markers are like pronouns and employs the notion that pronouns are lexically restricted in terms of the local domain within which they can be updated, and in terms of whether they have to be interpreted immediately, or allow a delay in interpretation. The most common pattern of Bantu subject markers is that they allow update from the context, but not from within their local (clausal) domain. This means that they cannot be used in presentational constructions: the update has to be local, for otherwise the subject would remain uninterpreted when an interpretation of the utterance is required. However, all Bantu languages discussed here have special pronominal subject markers, grammaticalized forms of locative subject markers, which allow precisely this delay in interpretation, namely that they can be used like ‘expletive’ pronouns. These subject markers can be updated both locally, and with information provided after they have been introduced. A final type of lexically specified subject marker is the type found in Swahili, where all subject markers can be used as expletives, in what looks like a further step in grammaticalization. Thus, from this perspective, presentational and after-thought constructions in all languages discussed here share syntactic, prosodic and information structure characteristics. However, there is lexical variation as to which pronominal subject markers can be used in presentational constructions, as a result of grammaticalization-like language change.

## 5. CONCLUSIONS

Even though sketchy and not formalised, the analysis outlined above presents a particular take on the different aspects of Bantu VS constructions. To begin with, it does not assume that pragmatic notions like ‘topic’ and ‘focus’ are part of syntax: the analysis does not make reference to either of these notions for the syntactic analysis of presentational or after-thought constructions. Rather, pragmatic effects are purely a result of the interaction of pronominal interpretation and the contextual information available at the point at which the pronominal subject marker is encountered. In contrast to most other syntactic frameworks, the present analysis does not include TOP or FOC predicates as in LFG, nor designated syntactic projections for ‘TOPIC’ and ‘FOCUS’ as in current Minimalism. This is an advantage of the analysis in that it provides a much clearer picture of the pragmatic processes relevant for topic and focus interpretations, and their interaction with syntax. Furthermore, it also allows an analysis of prosody which models the interaction of prosody and syntactic structure building – in that prosody is seen as marking relevant local domains in which pronominal interpretation takes place and thus as contributing to the establishment of interpretations – without claiming that prosody marks specific syntactic positions such as FOC projections, which, at least in the examples discussed here, would be too strong a claim. Thus, syntax, prosody and information structure are under the present analysis related in that all play a role in the establishment of meaning in utterance interpretation, while at the same time, they can be seen as independent systems.

In terms of theoretical context, the analysis builds on LFG work on the pronominal nature of Bantu subject markers, on work in Relevance Theory about cognitive effects, as well as on DS work on the role of interpretation, context and linear order. However, it also has a number of parallels with ideas associated with Firth’s work, as pointed out above. In particular, two of the main Firthian themes are also central to the analysis here. One is the context of situation which for Firth was significant both with respect to particular context-dependent interpretations linguistic structures could receive, and also with respect to his conviction that language (and languages) has to be studied within fully contextualised detail, through detailed and thorough description. The second is Firth’s conception of levels of linguistic analysis, and in particular prosody, which he sees as a linguistic system in itself, and linked to other systems only through the overall point of language as conveying meaning. This polysystemic view of linguistic knowledge is highly compatible in spirit, though probably not in detail, with the present analysis.

A final outcome of the discussion presented in this paper is related to linguistic description. Following Firth, the paper advocates theoretically informed, detailed description. Any attempt to understand VS structures in Bantu needs to address questions of tone and prosody, context, syntax and word-order, and agreement. In terms of language description, some of these require establishment and checking of paradigms and fairly intricate processes such as tone spreading and deletion, while others require fully contextualized passages of language use

like dialogues, which presupposes long-term and dedicated field study. On the other hand, interest in the relation between information structure and word-order does not come out of thin air. As I have tried to show, the particular data presented here follow from, and are embedded in a wider theoretical discourse which has highlighted the questions addressed over the last decades or so, e.g. the role of information structure for syntax. In my view, it is quite generally true that data do not exist by themselves, but are the result of the researcher's background and particular pre-occupation at the time, which in turn is influenced by developments in the field. It is on this relation between theory and description that further understanding of language and the world's languages will be built.

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